

*Mary Thorne***ONLY COPY****INDIANA VOCATIONAL  
TECHNICAL COLLEGE****GENERAL CATALOG****1968-1970****CENTRAL OFFICES****333 N. PENNSYLVANIA STREET • INDIANAPOLIS, INDIANA 46204****DO NOT LEND OUT**

# Indiana Vocational Technical College.

## REGIONAL ORGANIZATION



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OFFICIAL COLLEGE CALENDAR

1968-1969

1969-1970

SUMMER QUARTER - 1967-68

SUMMER QUARTER BEGINS (NEW STUDENT ORIENTATION)	Wednesday, June 5
CLASSES BEGIN	Thursday, June 6
INDEPENDENCE DAY (COLLEGE CLOSED)	Thursday, July 4
PRE-REGISTRATION FOR FALL QUARTER	Monday, July 22 through Friday, July 26
OFFICIAL ENROLLMENT PERIOD FOR FALL QUARTER	Monday, August 12 through Friday, August 16
SUMMER QUARTER ENDS	During week of August 19*

FALL QUARTER - 1968-69

LABOR DAY (COLLEGE CLOSED)	Monday, September 2
FALL QUARTER BEGINS (NEW STUDENT ORIENTATION)	Monday, September 9
CLASSES BEGIN	Tuesday, September 10
TEACHERS INSTITUTE (COLLEGE CLOSED)	Thursday, October 24 Friday, October 25
PRE-REGISTRATION FOR WINTER QUARTER	Monday, October 28 through Friday, November 1
OFFICIAL ENROLLMENT FOR WINTER QUARTER	Tuesday, November 12 through Friday, November 15
WINTER QUARTER ENDS	During week of November 25*
THANKSGIVING VACATION	Thursday, November 28 Friday, November 29

WINTER QUARTER - 1968-69

WINTER QUARTER BEGINS (NEW STUDENT ORIENTATION)	Monday, December 2
CLASSES BEGIN	Tuesday, December 3
CHRISTMAS VACATION (COLLEGE CLOSED)	Monday, December 23 through Sunday, January 5

PRE-REGISTRATION FOR SPRING QUARTER

Monday, January 26  
through Friday, January 30

OFFICIAL ENROLLMENT FOR SPRING QUARTER

Monday, February 10  
through Friday, February 14

WINTER QUARTER ENDS

During week of February 24\*

SPRING QUARTER - 1968-69

SPRING QUARTER BEGINS (NEW STUDENT ORIENTATION)

Tuesday, March 4

CLASSES BEGIN

Wednesday, March 5

SPRING VACATION

Saturday, March 29  
through Sunday, April 6

PRE-REGISTRATION FOR SUMMER QUARTER

Monday, April 21  
through Friday, April 25

OFFICIAL ENROLLMENT PERIOD FOR SUMMER QUARTER

Monday, May 12  
through Friday, May 16

SPRING QUARTER ENDS

During week of May 19\*

SUMMER QUARTER - 1968-69

SUMMER QUARTER BEGINS (NEW STUDENT ORIENTATION)

Tuesday, June 3

CLASSES BEGIN

Wednesday, June 4

INDEPENDENCE DAY (COLLEGE CLOSED)

Friday, July 4

PRE-REGISTRATION FOR FALL QUARTER

Monday, July 14  
through Friday, July 18

OFFICIAL ENROLLMENT FOR FALL QUARTER

Monday, August 4  
through Friday, August 8

SUMMER QUARTER ENDS

During week of August 18\*

FALL QUARTER - 1969-70

LABOR DAY (COLLEGE CLOSED)

Monday, September 1

FALL QUARTER BEGINS (NEW STUDENT ORIENTATION)

Monday, September 8

CLASSES BEGIN

Tuesday, September 9

TEACHERS CONVENTION (COLLEGE CLOSED)

Thursday, October 23  
Friday, October 24

PRE-REGISTRATION FOR WINTER QUARTER

Monday, October 27  
through Friday, October 31

OFFICIAL ENROLLMENT PERIOD

Monday, November 10  
through Friday, November 14

FALL QUARTER ENDS

During week of November 24\*

THANKSGIVING VACATION

Thursday, November 27  
Friday, November 28

WINTER QUARTER - 1969-70

WINTER QUARTER BEGINS (NEW STUDENT ORIENTATION)

Monday, December 2

CLASSES BEGIN

Tuesday, December 3

CHRISTMAS VACATION (COLLEGE CLOSED)

Monday, December 22  
through Sunday, January 4

PRE-REGISTRATION FOR SPRING QUARTER

Monday, January 26  
through Friday, January 30

OFFICIAL ENROLLMENT FOR SPRING QUARTER

Monday, February 9  
through Friday, February 13

WINTER QUARTER ENDS

During week of February 24\*

SPRING QUARTER - 1969-70

SPRING QUARTER BEGINS (NEW STUDENT ORIENTATION)

Tuesday, March 3

CLASSES BEGIN

Wednesday, March 4

SPRING VACATION

Monday, March 30  
through Sunday, April 5

PRE-REGISTRATION FOR SUMMER QUARTER

Monday, April 20  
through Friday, April 24

OFFICIAL ENROLLMENT FOR SUMMER QUARTER

Monday, May 11  
through Monday, May 15

SPRING QUARTER ENDS

During week of May 25\*

SUMMER QUARTER - 1969-70

SUMMER QUARTER BEGINS (NEW STUDENT ORIENTATION)	Monday, June 1
CLASSES BEGIN	Tuesday, June 2
INDEPENDENCE DAY (COLLEGE CLOSED)	Saturday, July 4
PRE-REGISTRATION FOR FALL QUARTER	Monday, July 13 through Friday, July 17
OFFICIAL ENROLIMENT FOR FALL QUARTER	Monday, August 3 through Friday, August 7
SUMMER QUARTER ENDS	During week of August 10*

FALL QUARTER - 1970-71

LABOR DAY (COLLEGE CLOSED)	Monday, September 7
FALL QUARTER BEGINS (NEW STUDENT ORIENTATION)	Tuesday, September 8
CLASSES BEGIN	Wednesday, September 9

\*In accordance with IVTC requirements each quarter must contain a minimum of 53 actual class days. Within the week scheduled for the quarter to end, the regional institute will determine the final day classes are to meet. Provisions for observance of special days and programs are at the discretion of each regional institute and should be provided for in the local calendar.

## GENERAL COLLEGE STAFF

### Officers

Frederic M. Hadley. . . . . President  
Amherst College, A.B.; Wabash College, LL.D.

James W. Commons. . . . . Vice President of Administration  
Marquette University, B.S.; Indiana University. J.D.

Robert C. Riley . . . Vice President & Dean of Academic Services  
Purdue University, B.S., M.S.

### Administration

Phyllis R. Baker. . . . . Research Coordinator  
Indiana University, A.B.

John J. Birdcell. . . . . Director of Research  
Franklin College, A.B.; Indiana University, M.S.

Donald H. Bryan . . . . . Director of Student Personnel Services  
Butler University, B.S., M.S.

Albert P. Coffin. . . . . Director of Field Services  
U.S. Naval Academy, B.S.

George N. Constantine . . . . . Business Manager  
Andrews University, A.B.

Paul E. Couch .. Coordinator of Correctional Vocational Training

Mary H. Hume. . . . . Consultant, Health Occupations  
Washburn University, A.B.; Wm. Voelker School of  
Medical Technology, M.T. (ASCP)

William C. Jackson. . .Administrative Assistant to the President  
Purdue University, B.S.

Harold J. Johnson . . . . Director of Hotel and Restaurant ~~Careers~~ Training  
Butler University

Roger W. Newnum . . . . . Coordinator of Counseling and Testing  
Ball State, B.S.; Indiana State, M.S.

Alton V. Potts. . . . . Coordinator of Curriculum & Instruction  
Ball State University, B.S., M.A.

Carl F. Scott . . . . . Director of Curriculum & Instruction  
Purdue University, B.S., M.S.

John Seale. . . . . Coordinator, Comprehensive Planning  
Northwestern University, B.S.; Western Reserve, M.S.

Kenneth E. Tirmenstein. . . . . Director of Information  
Butler University

REGIONAL INSTITUTE ADMINISTRATIVE STAFFS

Region I  
Northwest Regional Institute

Region II  
St. Joseph Valley Regional Institute

Richard M. Wysong . . . . . Director  
Indiana State University, B.S., M.S.

Gordon C. Kennedy . . . . . Administrative Assistant  
Joliet Junior College, Notre Dame, Loyola University

Eugene R. Glod. . . . . Assistant Director of Student Affairs  
Western Kentucky State College, B.S.; Notre Dame, M.A.

Veryl Stamm . . . . . Assistant Director of Instruction  
Wayne State University, B.S.; University of Michigan, M.A.

Region III  
Northeast Regional Institute

Region IV  
Tippewa Regional Institute

Region V  
North Central Regional Institute

Harvey S. Poling, Jr. . . . . Director  
Indiana University, B.S., M.S.

Region VI

Region VII  
Wabash Valley Regional Institute

C. Huston Isaacs. . . . . Director  
Indiana State University, B.S., M.S.

Richard L. Davidson . . . . . Assistant Director  
Indiana State University, B.S., M.S.

William J. Maxwell. . . . . Industrial Coordinator  
Indiana State University

Maurice R. Overton. . . . . Director of Admissions  
Indiana State University, B.S., M.S.

Region VIII  
Mallory Technical Institute

Warren F. Haas. . . . . Director  
Purdue University, B.S.; Butler University, M.S.

Bruce V. Mitchell . . . . . Assistant Director  
Indiana Central, B.S.; Indiana University, M.B.A.

Clifford Allen. . . . . Assistant Director  
Indiana University, Purdue University, Butler University

Robert E. Cochran . . . . . Industrial Coordinator  
Purdue University, B.S., M.S.

Rolland G. Voris. . . . . Director of Admissions  
Indiana State University, B.S., M.S.

Weir Cook Division

David R. Oliver . . . . . Director  
Butler University, B.A., Indiana University, M.S.

James A. Barrett. . . . . Assistant Director  
Rose Polytechnic Institute, B.S.

Delford A. Mach . . . . . Counselor & Supervisor  
University of Minnesota, B.A., M.A.

Region IX  
Whitewater Regional Institute

Frank M. Pumerville . . . . . Director  
University of California, B.S.

Gerald N. Quinn . . . . . Assistant Director  
Butler University, B.S.; Indiana University, M.S.



Region X  
White River Valley Regional Institute

Marion E. Hall. . . . . Director  
University of California, B.S.; Ball State, M.S.

Region XI  
Southeastern Indiana Regional Institute

Gerald V. Kirby . . . . . Director  
Ball State University, B.S., M.A.

Ronald G. Wiseley . . . . . Industrial Coordinator  
Indiana State University, B.S., M.A.

James A. Dent.. . . . Director of Admissions  
University of Cincinnati, B.S., Xavier University, M.Ed.

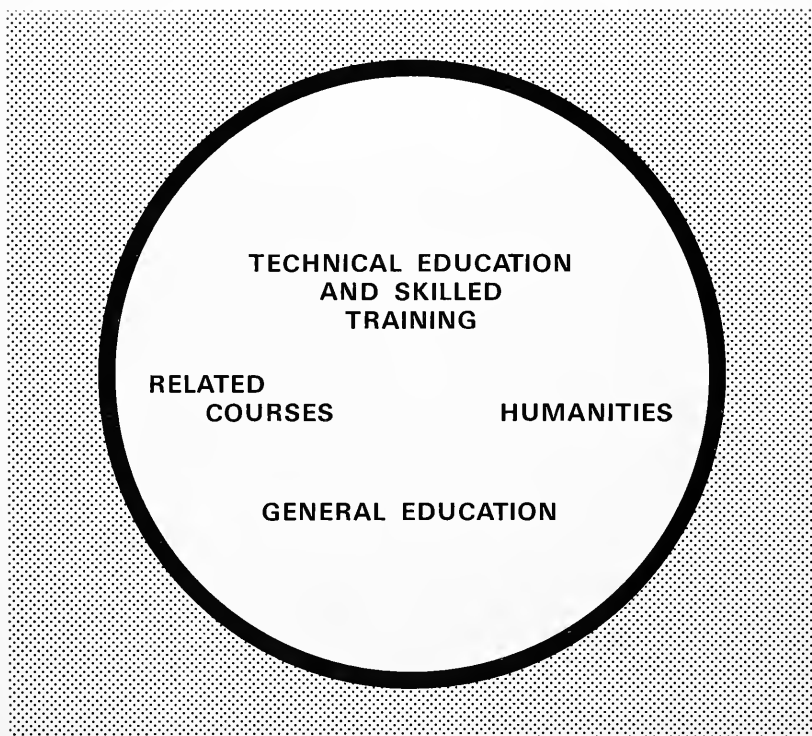
Region XII  
Lincolnland Regional Institute

Region XIII



## Section I

# General Information





## HISTORY AND ORGANIZATION

In 1961 the Indiana Legislature, recognizing the critical need for more and better trained personnel in many vital occupational categories and the apparent gap in the state's educational facilities for vocational and technical training of less than the university degree levels, created the Post-High School Study Commission. Recommendations of this Commission led the General Assembly in 1963 to create and establish (Chapter 371, Acts of 1963): ". . . a new state educational institution to be devoted primarily to non-collegiate non-credit practical or vocational-technical and semi-technical training for the citizens of Indiana." The name given to the institution was "Indiana Vocational Technical College." A sum of \$50,000 was appropriated to establish an interim director and recommend organizational procedures.

The 1963 General Assembly passed legislation amending the Act of 1963 and defining in more detail the responsibilities of the College with respect to operational procedures and the College's role in post-high school and adult training. In addition the Act mandates the establishment of appropriate geographical regions with the state and the appointment of regional Boards of Trustees to ensure adequate local administration of the Regional Technical Institutes. A sum of 2.6 million was appropriated for the biennium.

In 1967 the General Assembly appropriated 4.4 million for operation and further expansion of the College. Additional legislation was passed which gave the College more independence in matters of property acquisition, leasing and rental agreements, personnel procedures and administrative policies.

## PURPOSE AND FUNCTION OF IVTC

The Indiana Vocational Technical College was created by the Indiana General Assembly in 1963, in view of the vast need of state-wide, post-high school vocational-technical education.

The primary purpose of IVTC is to fill the gap between high school and university programs in order to meet the needs for expanded and strengthened programs in vocational-technical education in our state.

To accomplish this, the College provides non-baccalaureate, post-high school vocational-technical education for:

- ... students who have not graduated from high school;
- ... high school graduates who are not planning to attend college but who are interested in vocational-technical education programs of less than four years' duration;
- ... students who have not completed college;
- ... college graduates who wish to add to their college educations with some vocational and technical training;

... adults needing and desiring retraining or additional training of a vocational or technical type.

Technology has advanced in many areas to the point where specialized and extensive preparatory education is required for employment. While some programs are available, post-high school, non-baccalaureate vocational-technical training efforts have been sporadic. To date they have offered specific courses of interest rather than integrated and certified training programs. Current reports indicate that of those now entering the labor force without baccalaureate degrees, only one of ten has some specific occupational preparation.

The continued economic growth and development of Indiana depends upon the development of its manpower. Industry and employers' requirements for trained persons in each occupational field change constantly with the rapid advances being made in technology. Unless sufficient training opportunities are provided to enable the labor force to keep pace with changing needs, Indiana's ability to grow and maintain a sound and attractive economy may be adversely affected. Indiana Vocational Technical College can help meet these needs as well as enabling the state's residents to improve their employment opportunities.

Education to develop occupational skills will enable Indiana residents to advance economically and socially. It will enhance individual value and dignity by satisfying human aspirations, by increasing interest to locate a rewarding position in the work force and by helping disadvantaged and handicapped persons to become self-supporting.

This critical need underscores the significant potential contribution which IVTC can make in the vocational-technical education area.

The map of Indiana shown on the inside front cover depicts the wide coverage of training opportunities provided throughout Indiana and indicates the location of the 13 Regional Institutes. In each regional institute modern facilities and equipment are available or are being acquired to provide each student with a training environment closely identical to facilities and equipment found in business and industry. Each regional institute endeavors to provide its own environmental training laboratories based on the needs in that specific area.

When adequate facilities are not immediately available in a regional institute, the College may provide such training by arrangement with both public and private educational institutions, business, industrial and labor organizations.

#### GIFTS AND BEQUESTS

Indiana Vocational Technical College or Regional Institutes will welcome gifts and bequests which may be used for general purposes or for specific purposes as indicated by the donor.

The President of the College or the Director of a Regional Institute will be pleased to confer with individuals or organizations on the needs of the College and on the method by which the presentation may be made.

Such contributions are deductible in computing net income subject to federal income tax.

## COLLEGE EXPENSES

**FEES** - The Indiana Vocational Technical College seeks to provide quality training opportunities at the lowest possible cost. As a state assisted educational institution of Indiana, fees paid by the student cover only a minor part of the operating costs of the College and its regional institutes.

Free tuition is granted to all students who are residents of the State of Indiana. All non-resident students are required to pay a tuition fee in addition to the General Service Fee. The following schedule of fees is outlined below:

### SCHEDULE OF FEES (Per Quarter) Degree and Certificate Programs

	Resident of Indiana	Credit Hours	Non-Residents of Indiana
Tuition Fee	None	15-18	\$60.00
	None	11-14	45.00
	None	7-10	30.00
	None	3-6	15.00
	None	1-2	10.00
General Service Fee	\$60.00	15-18	\$60.00
	45.00	11-14	45.00
	30.00	7-10	30.00
	15.00	3-6	15.00
	10.00	1-2	10.00

**WITHDRAWALS FROM COLLEGE OR COURSES** - A student is not considered officially withdrawn until he has completed and filed the necessary withdrawal forms at the Admissions Office. Any withdrawal other than an official withdrawal does not permit the refund of any tuition or General Service Fee and may deprive the student of an opportunity to resume his education at a later date.

Any student who is dismissed for cause or misconduct shall not be entitled to any refund.

**LABORATORY AND BREAKAGE FEES** - Fees are determined on an individual laboratory basis for each course requiring such assignments. Monies derived from these fees are used to replace the special expendable supplies required in laboratory activities. The College charges no breakage fee or property damage fee to students, but in case of breakage due to gross negligence or

maliciousness, the student shall be expected to remunerate the College. Credits may be withheld until proper payment is made.

**STUDENT ACTIVITY FEE** - A student activity fee will be charged each student. The proceeds of the fee will remain in the College and will be budgeted to support non-curricular educational and recreational activities. These activities will include such functions as publications, speakers, special convocations, and various programs of recreation and entertainment including intramural sports.

All fees are payable at the time of official enrollment in the College and will be subject to change by the College Board of Trustees at the beginning of any school quarter. If it becomes necessary to make such adjustments in fees, the College will attempt to give reasonable notice.

#### **FINANCIAL ASSISTANCE, VETERANS AND GOVERNMENT AGENCIES**

Most regional institutions are approved for the training of persons eligible for benefits under the Veterans Administration, Social Security Commission, and the Division of Vocational Rehabilitation of the State.

Every effort has been made in the construction of the College's training programs to meet the needs of veterans. The College is qualified and equipped to furnish education through the Veterans Administration to service-connected disabled veterans and children of veterans qualified under Veterans Administration regulations.

Additional information concerning these benefits is available at the Student Personnel Office or from offices of the above named agencies.

#### **VETERANS**

The Indiana Vocational Technical College and its regional institutes has been approved for veterans training. A veteran enrolling in IVTC must make application for a certificate of eligibility directly to Veterans Administration Regional Office, 36 South Pennsylvania Street, Indianapolis, Indiana 46204. Local VA offices may be located near a regional institute where assistance may be obtained in making application.

Educational benefits for orphans of veterans and vocational rehabilitation of veterans are also processed by these VA offices. Certificates of eligibility must be received by the student before official enrollment is permitted. Applications for eligibility should be made with the VA office at least 30 days prior to the date the student is to enroll.

#### **MDTA STUDENTS**

For students enrolling under the sponsorship of the Manpower Develop-



ment and Training Act, final approval from the local office of Indiana Employment Security Division as the authorizing agency must be received before final enrollment and class attendance may begin. Students seeking training under this program must make their application at least 30 days prior to the date the college quarter is to begin or the course is to start. An official college or regional institute application for admission must be submitted with the request for training to the local employment security office.

## BOOK STORE

A bookstore is maintained at each regional institute to make available the books and supplies needed by students in training programs. The bookstore will be open approximately one week prior to the opening of school and will remain open throughout the school year, including summer sessions.

All books and regular supplies needed for training will be offered for sale at the bookstore. When special supplies are needed which are specifically related to laboratory requirements in a curriculum, they will be provided as a part of the laboratory fee.

## MEDICAL SERVICES

Regional institute medical services include first-aid facilities, with a Licensed Practical Nurse or a Registered Nurse at most schools. Usually a doctor is on call. Should the student require immediate treatment, transportation is provided to a nearby hospital.

## HOUSING AND TRANSPORTATION

The College at each regional institute does not provide housing nor transportation for its students. The Student Personnel Office at the regional institutes or training centers will however assist students in obtaining adequate housing.

## ADMISSION STANDARDS AND PROCEDURES

The programs and courses offered by the Indiana Vocational Technical College are available to all persons, Indiana residents and non-residents, who have passed their 16th birthday. Some programs such as practical nursing have a minimum age requirement of 18 or older.

Campus Visits - Campus visits are encouraged by the regional institutes. It is recommended that an initial visit to the prospective facility be made before an application is filed.

College Year - The college year begins in September and continues through August. The twelve months are divided into four quarters, exclusive of holidays and vacations which correspond to those generally recognized by other state universities and colleges. It is possible to enter some programs at the beginning of the second, third, or fourth quarter. The Evening College operates on the same quarter plan and recognizes the same calendar for registration, holidays, and vacations.

If the qualifications for admission are met, the student may be admitted to some courses up to the beginning of the third week of any quarter. When such admission is granted by a regional institute, the student will be required to pay the full fees for the quarter and will be required to meet the regular course requirements by special arrangements with each instructor to receive college credit.

Admission Requirements - Admission to Indiana Vocational Technical College will be granted to any trainee who:

- (1) has a high school diploma or equivalent, or
- (2) has achieved satisfactory results on IVTC diagnostic placement tests, or
- (3) has otherwise demonstrated positive evidence of possessing necessary potential for success.

Admission may be granted by the College in situations requiring special consideration.

Prospective trainees of high school age who have not received a high school diploma or the equivalent will be required to wait one year after withdrawing from their high school program before being considered for an Indiana Vocational Technical College program. The one-year period may be waived if an application for admission is accompanied by an acceptable letter from the high school principal or superintendent.

A prospective trainee is considered a resident of the State of Indiana if he has resided within the State for a minimum period of six months and intends to continue in that residence.

The College admission policy makes provisions for admission of any person regardless of race, color or national origin, in accordance with Title VI, Civil Rights Act of 1964 and operates in compliance with the law.

#### Entrance Procedure for Full-Time Programs

1. Contact the regional institute for pre-enrollment or official application.
2. Complete the forms and return to the regional institute.
3. Request high school registrar to mail an official transcript of credits to the regional institute. Official transcripts from any college or other post-high school institution

should also be sent to the regional institute.

4. Take diagnostic aptitude and various ability tests which are given at each regional institute. Notification of when tests will be given will be sent to applicants. Report for testing and personal interview at the appointed time and place.
5. All fees must be paid or final arrangements for paying fees made at the time of official enrollment, which is at least one week before the beginning of any quarter, except as provided for in the Evening College.
6. Evidence of physical condition from family physician.

## EVENING COLLEGE

Class offerings in the Evening College parallel those offered during the regular day program and will earn credit and may be used to meet the requirements for technical or vocational-technical certification. Requirements for admission are:

1. Submission of a general admission form at the time of enrollment in classes.
2. Payment of fees.

Students who are working toward a specific curriculum or program certification should make provisions for regular admission to the College through the Admissions Office before they have completed the equivalent of one quarter's work or 15 credit hours.

## COLLEGE CREDIT

College credit is measured in quarter hours. The quarter hours of credit for each course is indicated in Section III, Course Description. In general, one quarter hour of credit is intended to represent one hour of classroom instruction per week for one quarter. The college credit value applicable for laboratory work required in each course varies depending on the nature of the course content and experiences provided.

For students devoting their full time to college pursuits, 15 to 18 credit hours per quarter constitutes a normal class load. A full-time student must carry an average of 15 credits per quarter to graduate at the end of a six quarter program. A student desiring to carry an overload must have demonstrated outstanding scholastic ability.

## TRANSFER CREDIT

The College intends to remain flexible with regard to accepting transfer credits for incoming students. To be acceptable, transfer credits must be earned in a university, college or post-high school institution

which is accepted or approved by a recognized accrediting agency or association as meeting its criteria. Such agencies include, Commission on College and Universities, North Central Association of College and Secondary Schools; and associations and councils listed in Office of Education Bulletin, No. 1, "Accredited Higher Institutions," U.S. Department of Health, Education and Welfare. Courses taken at institutions not meeting the accrediting criteria for training may provide advanced standing for the student through proficiency tests given at the regional institutions.

Within the Indiana Vocational Technical College, credits are transferable from one regional institute to another at full credit value.

#### ADMISSION WITH ADVANCED STANDING

A student wishing to transfer from or receive credit for courses taken at another college, university or IVTC intracollege should complete the regular application for admission forms and present a transcript of work already completed. A student must have made satisfactory progress in the college attended and received an honorable release. Satisfactory progress means that the transferring student will have at least an average grade (2.0 quality point ratio or equivalent) in the course work completed at the former college or university. Until complete transcripts have been received the student will be admitted on a provisional status.

Advanced standing may be given to an individual student in a situation where the applicant has received training at another institution. To be eligible to receive technical or vocational-technical certification by IVTC at least one half of the credits must be earned within the Indiana Vocational Technical College system of regional institutes.

#### Procedure and Requirements for Obtaining Credit or Advanced Standing by Examination

1. To qualify, the student must be:
  - (A) A high school graduate or equivalent who has successfully completed such courses in preparation for a specific occupational area wherein he is requesting advanced standing.
  - (B) A veteran who has completed approved training courses within the Services. This training must be equivalent to the basic course work as offered at IVTC. It is necessary to provide proof of such training.
  - (C) Recommended for advanced standing by the Admissions Office.
2. The student secures an application for taking the examination from the Admissions Office of the regional institute and completes the

appropriate section. The student will be notified of the date of examination by mail or by the Admissions Office.

3. The student may be requested to submit examples (3) of his most recent work, where applicable to the field of concentration. (Example: Drafting - 3 recent drawings.) These examples are to be submitted to the instructor administering the examination on the date of the examination.

## COUNSELING SERVICE

Counseling services are available at each regional institute. These services offer a wide range of educational and vocational aptitude tests for students. Counselors will also help acquaint students with the community and State agencies and other resources which may be useful to the students.

As a student progresses toward the completion of a training program, there may be occasions when counseling services will be desired. Students are required to maintain a cumulative grade point average of 2.0. All students are encouraged to contact a counselor or their faculty advisor at any time.

## TESTING

A basic test battery is used for counseling purposes throughout the College. The tests provide an indication of the aptitude, ability, manipulative skills, etc., a person possesses. It is the desire of the College to have every student who is enrolled in a regular program take the official college test battery.

In addition special aptitude and proficiency tests are required in some occupational areas.

## HIGH SCHOOL EQUIVALENCY TEST PROGRAM

The equivalency program makes it possible for an adult to take the General Educational Development Test (GED) to determine if he can score at the twelfth grade completion level in English, mathematics, science and social studies. If an adult is able to make the necessary scores, he is then offered the equivalency certificate. Regional institutes may administer the tests as a part of their testing program or refer the applicant to the nearest existing organization authorized to administer the tests. A person must be 21 years of age before the equivalency certificate is issued. He must live in the state at least twelve months prior to making application for the examination. Should a person fail one or several parts of the five-part examination, he may then enroll in necessary courses offered at the regional institute and at the end of the course or a minimum of six months later, re-take the

necessary tests. The nearest regional institute in the college system may be contacted for more information about the equivalency test program.

## PRE-TECHNICAL COURSES

Many ambitious, intelligent individuals for one reason or another were unable to acquire normally recommended courses for admission to specific technical and vocational programs. Such students may overcome their scholastic deficiencies by enrolling in college, post-high school parallel subjects as elective courses offered in the various departments at each regional institute.

Such non-credit course offerings in algebra, plane geometry, physics, chemistry, English and developmental reading will be offered from time to time as necessity demands. Enrollment in these courses can raise the student's capabilities and increase his chances of successfully completing a rigorous technical curriculum.

These subjects are described in Section III, Description of Courses.

## ORIENTATION

New students will receive orientation to the College under the supervision of the regional institute. Orientation programs are usually scheduled on the first day of each new college quarter. The actual date for the new student orientation is listed in the official college calendar; however, the new enrollee should verify the date with the regional institute he plans to attend.

## RESEARCH FACILITIES

Indiana Vocational Technical College maintains a research and planning division which is responsible for programs to determine manpower needs, job opportunities and occupational trends within the state.

The activities of this division are not limited, however, to studies of a manpower nature, but rather encompass all activities calling for planning of a technical and vocational education program to meet the needs of the citizens of Indiana. The central staff of the Research and Planning Department is available to assist regional personnel in their planning and to serve as a co-operating and co-ordinating group between regions to assure statewide unity in Indiana Vocational Technical College programs and policies.

In conjunction with these activities the Research and Planning Department maintains a library of resource material and research data on Indiana Vocational Technical College projects and vocational education in general. This library, designed primarily for regional and central staff personnel is also open to students or other persons wishing to avail themselves of its specialized information.

## GRADING SYSTEM

Scholastic standards are maintained at a high level. Grades will be mailed to the student's home address at the end of each quarter. The following system is used to evaluate student achievement in each subject:

GRADE	QUALITY	QUALITY POINTS* (Per Credit Hour)
A	Superior	4
B	Excellent	3
C	Good	2
D	Poor	1
F	Failing	0
WP	Withdrawal (Passing Grade)	0
WF	Withdrawal (Failing Grade)	0
I	Incomplete	

\*For a student to determine his quality point ratio, it is computed by dividing the total quality points received by the sum of the total credits earned. For example: A student who has earned a total of 45 college credits with all grades of "B" has a 3.0 quality point ratio.

## GRADUATION WITH HONORS

Students who complete a prescribed curriculum vocational-technical certification with a quality point ratio of 3.60 or better will be graduated with high honors.

The student who earns a quality point ratio of 3.25 to 3.59 will be graduated with honors.

## FACULTY AND INSTRUCTION STAFF

The instructional staff for each regional institute is selected on the basis of its total qualifications. Considerable emphasis is placed on actual experience in their vocational or technical area of specialization, as well as their academic achievement. Primary consideration is also placed on the instructor's ability to relate and transfer knowledge of the subject to provide an excellent learning environment. Included among the criteria for faculty selection is the ability on the part of the teacher to maintain his professional status by keeping informed on the most recent trends in his field.

## RECOGNITION AND ACCREDITATION

Indiana Vocational Technical College is responsible to confer non-baccalaureate, two-year technical degrees and award technical diplomas and occupational certificates. The College is a member of the Indiana Conference for Higher Education and the American Association of Junior Colleges.

The College is approved for the education of Veterans and orphans of deceased veterans who have educational benefits and is endorsed by the rehabilitation division of the State of Indiana.

Courses of study and curricula for each technical and vocational area of concentration are also approved or accredited by appropriate certifying agencies, as well as the business, labor and industrial organizations.

Additional information may be obtained at the Admissions Office of each regional institute.

## ADVISORY COMMITTEES

The Indiana Vocational Technical College is developed upon the premise of a close correlation with all employing segments of the economy.

Through advisory committees composed of representatives of the various employing areas, the College is kept informed of the needs of such employers, the requirements of training needed, the types of equipment needed for such training and the performance standards which are necessary.

The employing elements are business, industry, commerce, agriculture, government institutions, etc.

The various advisory committees provide an on-going service to each regional institute as well as the college headquarters staff to ensure that programs presented are adequate, up-to-date, and complete and that students so trained are better equipped with employable skills.

## CURRICULUM AND GRADUATION REQUIREMENTS

In each regional institute of the College, the curriculum is designed to meet the specific training needs of industry and business in that area, as well as in the other areas throughout Indiana based on the population trends, industrial growth, job potentials and present and future job needs.

Three major types of occupational training programs are offered for both male and female students: Technical Degrees, Technical diploma programs, and certificate courses.



To meet the general requirements of the College for graduation, the student must have a cumulative quality point ratio of 2.0 or better in all accredited work.

Candidates for graduation will be required to earn at least 50 per cent or one-half of the credit hours that apply toward a specific program of study at regional institutes within the Indiana Vocational Technical College educational system. The final 15 credit hours must also be earned within the College.

#### TECHNICAL DEGREE

For a technical degree, the requirement is the completion of a six quarter, two-year curriculum containing a minimum of 90 quarter credit hours in an approved technical curriculum concentration area, as provided for in specific programs outlined in Section II, Description of Curricula. A minimum of 75 credit hours must be earned in a technical concentration area of which 15 credit hours must be earned in related mathematics and science. The balance of 15 credit hours must be earned in electives related to general education courses, including academic courses, of which at least six credit hours must be earned in communication skills.

#### TECHNICAL DIPLOMA PROGRAMS

Depending upon the prescribed length of the program, which may range from one to two years (three to six college quarters), the following schedule of credits must be earned in programs outlined in Section II, Description of Curricula:

Curriculum Requirements	Number of Quarters			
	3	4	5	6
Technical or Occupational	36	48	60	72
Related Math & Science	6	8	9	10
General Education	3	4	6	8
TOTAL CREDIT HOURS FOR GRADUATION	45	60	75	90

Technical and occupational program offerings are designed to prepare graduates for occupations in specific employment areas; such as, agriculture, business and commerce, distribution services, health and service,

and industry. If taken on a part-time schedule, the same program will require an extended period of time for completion.

Many of the courses taken in a diploma program will apply toward the Technical Degree for the student who desires further education and training.

A Technical Diploma program, as outlined in Section II, Description of Curricula, provides for a minimum of 70 per cent of credits earned toward graduation to be in actual laboratory experiences which will be similar to work experiences found in the employment environment after graduation.

#### OCCUPATIONAL CERTIFICATE COURSES

Occupational course offerings are designed to assist employed, under-employed and unemployed workers and students either to increase or to up-date knowledge and skills used in present employment. These courses also provide an opportunity to learn new skills for better employment. Courses may vary in length and are scheduled upon request. Certificates are awarded for specific areas of specialization within a technical or occupational curriculum. The recipient may later apply credits earned towards a technical degree or diploma.

Included among such course offerings are classroom instruction and laboratory work in welding, brick laying, blueprint reading, tool and die making, etc., which apprentices for skilled trades may need to meet the journeymen requirements. Such formalized apprenticeship training is coordinated with local industry, trade unions and the College.

#### SPECIAL SHORT-TERM COURSE OFFERINGS

Specialized training programs are offered by each regional institute. These courses are organized with the cooperation of industry and business to meet a specific need within the regional area. These courses do not normally conform to the regular college calendar and the starting and ending dates of short-term courses are left to the discretion of the officials of each regional institute. Such specialized short-term course offerings do not appear in the College catalog since they are of less than one college year's duration and fees are charged on the basis of the actual hours the class is scheduled to meet. Information regarding these special course offerings is available at the Admissions Office of each institute.

#### CO-OPERATIVE PROGRAMS

These programs are formalized courses of study which industry and business establish with the College and which provide for the student to alternate college attendance with work-related experiences.

When such programs are entered into by agreement among the student, the College and employing agency, the length of time required for completing a degree, diploma, or certificate may be extended depending on the amount of credit applicable for the work related experience.

## PLACEMENT

The fundamental purpose of vocational and technical training is to provide an opportunity for entrance into the world of work at a more skilled level and to provide an opportunity for upward mobility for those already employed. To assist persons in making good use of new skills developed through training at the College an enthusiastic and active effort shall be made to place individuals in positions for which they have been trained. Contacts with major employers, arrangements for interviews, and liaison with Indiana Employment Security Division are provided through the job placement counselor at each regional institute. Every effort is made to assist the graduating student in securing a profitable position.

## SELECTIVE SERVICE

Draft age students attending full-time regional institutes have generally been assigned a deferred classification by their local Selective Service Board for the period of time that they are enrolled. While indications are that the school will retain this status in the future, it should be noted that changes in manpower needs could effect the situation. Also, only a full-time student who maintains satisfactory grades may be eligible for a deferred classification.

## STUDENT COUNCIL

The student has the opportunity to receive practical experience in responsible leadership through participation in extra-curricular programs. The principal objective of Student Council is to provide and assist in the management of student activities.

## RECREATION

Students are encouraged to take part in activities, sports, clubs, and special events. Regional institutes usually have game rooms or lounges and snack bar areas. Some have formed intramural athletic leagues for basketball, bowling and softball.

## CONDUCT

College students are considered to be mature individuals. Their conduct,

both in school and out, is expected to be dignified and honorable. The responsibility for success rests largely on the shoulders of the individual students.

The administration does not set many rules of conduct. On the contrary, it is expected that students will consider they are living in a democratic situation and that the reputation of the institutions rests on their shoulders. Common courtesy and cooperation at all times make conduct rules unnecessary.

REGION I  
BOARD OF TRUSTEES  
NORTHWEST REGIONAL INSTITUTE

<u>Name and Address</u>	<u>Vocational or General Group Qualification</u>
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COMMISSIONED: January 1, 1968

Regional Director:

REGION II  
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Mr. Jesse Dickinson South Bend Housing Authority 1023 Talbot South Bend, Indiana 46617	Governor Appointee

COMMISSIONED: May 15, 1967

Regional Director: Richard M. Wysong  
St. Joseph Valley Regional Institute  
1534 West Sample Street  
South Bend, Indiana 46619  
219 - 289-4096

REGION III  
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Regional Director:

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COMMISSIONED: January 1, 1968

Regional Director:



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Mr. John Hingst 1520 West Mulberry Street Kokomo, Indiana 46901	School Board (Chairman)
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Mr. J. Robert Mitten 252 West Sinclair Street Wabash, Indiana 46992	Governor Appointee

COMMISSIONED: January 1, 1968

Regional Director: Harvey Poling, Jr.  
North Central Regional Institute  
Kokomo, Indiana 46901  
317 - 457-3860

REGION VI  
BOARD OF TRUSTEES

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Regional Director:

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Mr. Mike Rendaci Mike's Motors 111 Elm Street Clinton, Indiana 47842	Commerce
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Mrs. Charlotte Caldwell, Member Board of School Trustees Vigo County School Corporation 667 Walnut Street Terre Haute, Indiana 47801	School Board
Mr. Harold Stewart, Teacher Greencastle Community Schools 7 Spring Street Greencastle, Indiana 46135	Vocational Education
Professor John L. Bloxsome Rose Polytechnic Institute 5500 Wabash Avenue Terre Haute, Indiana 47803	Governor Appointee (Vice Chairman)

COMMISSIONED: December 5, 1966

Regional Director: C. Huston Isaacs  
Wabash Valley Regional Institute  
R. R. #3, Box 116  
Terre Haute, Indiana 47802  
812 - 299-1121

REGION VIII  
BOARD OF TRUSTEES

MALLORY TECHNICAL INSTITUTE

Operated in conjunction with  
the Indianapolis Public Schools.

INDIANA VOCATIONAL TECHNICAL COLLEGE  
WEIR COOK DIVISION

Operated as a Manpower Development  
Training Act facility for Region VIII

Directors:

Mallory Technical Institute

Warren Haas  
1315 East Washington  
Indianapolis, Indiana 46202  
317 - 632-8421

IVTC  
Weir Cook Division

Dave Oliver  
6800 West Raymond St.  
Indianapolis, Indiana 46261  
317 - 244-7631

REGION IX  
BOARD OF TRUSTEES  
WHITEWATER REGIONAL INSTITUTE

<u>Name and Address</u>	<u>Vocational or General Group Qualification</u>
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Mr. Paul A. Patterson 110 South Eighth Street Richmond, Indiana 47374	School Board (Vice Chairman)
Mr. James H. Herbstreit 1417 West Seventh Street Connersville, Indiana 47331	Labor (Secretary)
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Mr. John L. Hackleman R. R. #1 Milton, Indiana 47357	Agriculture
Mrs. Phyllis Joyce R. R. #1 Rushville, Indiana 46173	Vocational Education

COMMISSIONED: January 1, 1968

Regional Director: Frank M. Pumerville  
Whitewater Regional Institute  
358 Northwest F Street  
Richmond, Indiana 47374  
317 - 966-5944

REGION X  
BOARD OF TRUSTEES  
WHITE RIVER VALLEY REGIONAL INSTITUTE

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Mr. Wendell Stapp, Business Agent Carpenter's Union 2760 - 25th Street Columbus, Indiana 47201	Labor
Mr. Gilman Stewart R. R. #8 Greensburg, Indiana 47240	Agriculture (Vice Chairman)
Dr. John P. Brogneaux Indiana University Bloomington, Indiana 47401	School Board
Mr. William C. Baker Bartholomew County Consolidated Schools 2650 Home Avenue Columbus, Indiana 47201	Vocational Education (Secretary)
Mr. C. Raymond Snapp, Editor Bedford Times Mail Bedford, Indiana 47421	Governor Appointee

COMMISSIONED: June 20, 1967

Regional Director: Marion E. Hall  
White River Valley Regional Institute  
City Hall Building  
5th and Franklin  
Columbus, Indiana 47201  
812 - 372-9925

REGION XI  
BOARD OF TRUSTEES

Operated in conjunction with  
Southeastern Indiana Vocational School

Regional Director: Gerald Kirby  
Southeastern Indiana Vocational School  
Post Office Box 156  
Versailles, Indiana 47042  
812 - 689-7301

REGION XII  
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Mr. D. W. Vaughn, President Southern Indiana Gas & Electric Company Hulman Building 24 Northwest Fourth Street Evansville, Indiana 47703	Manufacturing (Vice Chairman)
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Mr. John T. Rumbach 975 MacArthur Street Jasper, Indiana 47546	Governor Appointee

COMMISSIONED: January 1, 1968

Regional Director:



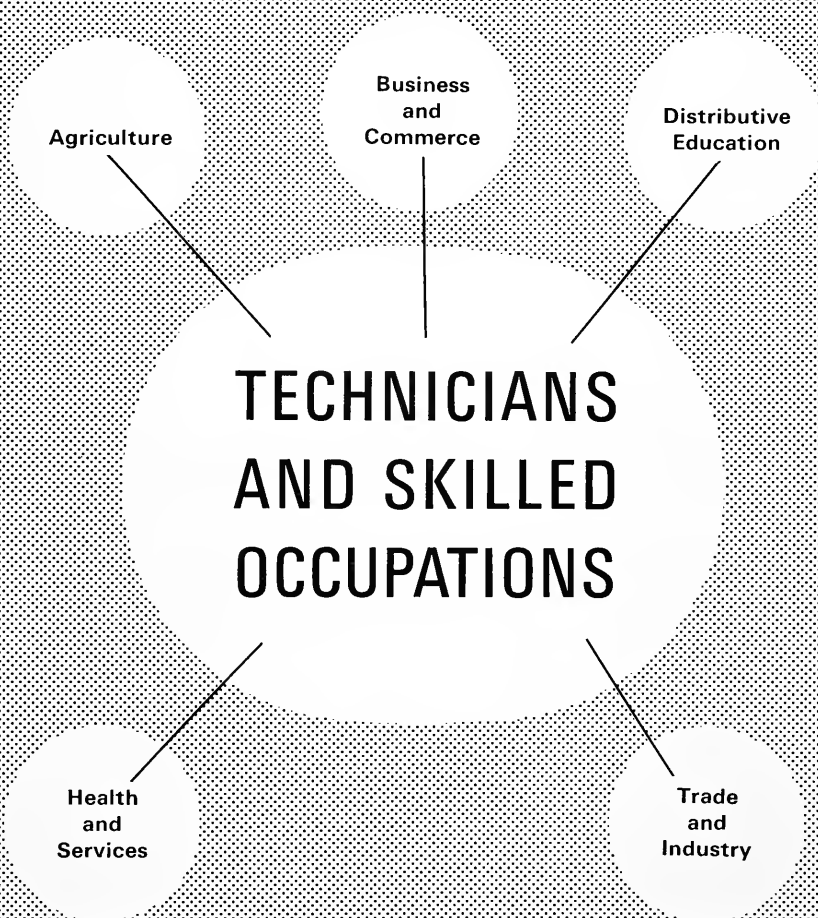
REGION XIII  
BOARD OF TRUSTEES

Not appointed at the time catalog published



## Section II

# CURRICULA AND PROGRAMS





## TECHNICIANS AND SKILLED OCCUPATIONS

Training for technicians is designed to meet the increasing demand for semi-professional workers resulting from rapid developments in modern business and industry. The term "technician" is used to describe a large group of vocations found in Agriculture, Business and Commerce, Distributive Education, Health and Service, Home Economics, and Trade and Industry.

Because of the highly skilled technical nature of the technician's vocation and because often times they are required to supervise other employees, the need for a working knowledge of science, mathematics, report writing, contracts and specifications, human relations, economics and public speaking are required in each curriculum. The duties of the technician make such highly specialized training a necessity. He must develop skills for the use of tools and equipment needed in a specific technical job; he must perform many tasks formally assigned to professional personnel; he must understand professional terms, and must be able to do detailed planning.

The trend toward automation of industrial processes, the nation's vast highway building program, the earth satellite and other space programs will add to the demand for technically trained personnel. Also of great importance to the growth and employment of technicians is the prospect of continued high level of government and private expenditures for research and development in future years. There is an increasing demand for women to enter technical vocations.

The technical programs contained in this section are vocationally and career oriented. They are designed to teach each student what information and skills he will need in order to be successful in his chosen career as a technician or skilled craftsman.

Skilled occupational programs related to each technical area are also outlined within each of the major curriculum. The majority of technical curriculum programs are six quarters or two-college years in length. The skilled-occupational programs are usually of shorter duration and require considerable laboratory work which simulates actual on-the-job experiences. Where the student attends classes part-time and works part-time, the work experience should be coordinated with the employer to provide those learning experiences related to the classroom teaching.

## COURSE LETTER AND NUMBER CODES

Courses are identified by both a letter and a four-digit number as described below:

### Alphabetical Designations:

G - General Education

M - Mathematics and Science

T - Technical

O - Skilled Occupational

P - Pre-Technical

Numerical Designations:

General Education

Pre-Technical 0100 - 0199

Communication Skills 0200 - 0299

Mathematics 0300 - 0399

Science 0400 - 0499

General 0500 - 0999

Agriculture 1000 - 1999

Business & Commerce 2000 - 2999

Distributive Education 3000 - 3999

Health & Services 4000 - 5999

Trade & Industry 6000 - 8999

## AGRICULTURE

Agricultural occupations, both technical and vocational, today afford many opportunities for excellent employment. Increased specialization and mechanization in agriculture have fostered new occupations away from the farm as well as requiring the successful farmer to become an agricultural business manager.

The College offers training programs in the areas of agricultural management and the areas of specialization that perform specific services for the farmer. Other related programs which are agriculturally oriented include such curricula as Ornamental Horticulture Technician, Farm Mechanics, Agriculture Equipment Sales and Servicing, Animal Hospital Technician, etc.

Agricultural programs offered by Indiana Vocational Technical College are outlined herein and range from two-year programs to programs of less than two years for which certificates are awarded.

In providing agriculture training, the curricula are constructed by advisory committees of agriculture representatives to assure that subjects covered and courses taught provide the students with experiences needed in their chosen occupation.

### AGRICULTURAL BUSINESS TECHNICIAN

#### A Two-Year, Post-High School Technical Curriculum

##### DESCRIPTION

The two-year agricultural business course is designed to give the student a thorough understanding of business principles and procedures as they relate to agricultural products, services and supplies. An advisory committee from production agriculture, education and business helped establish the curriculum in order that the student would have a broad coverage in subject matter and be qualified to enter a number of different types of business organizations. The course is well balanced with study in human behavior, business techniques and agricultural procedures and processes.

In classrooms containing business machines, the student becomes familiar with procedures in accounting, record keeping, budget making, etc. In laboratory facilities, the student learns agriculture as it is being practiced today. Through selected field trips, modern agriculture and businesses are viewed by the student. Some time may be spent actually working in these areas for which college credit may be earned.

##### GENERAL QUALIFICATIONS

A farm background and some understanding of the basic concepts of plant

and animal science is desirable but is not a prerequisite. Ability to adjust to many situations is a must. Also, they should be interested in people and have a real desire to be closely associated with agricultural workers.

## EMPLOYMENT

With the trend to more automation, all businesses are seeking men and women who have skills acquired in study beyond the high school. For those who want inside work, the chain stores offer unlimited sources of employment in such areas as produce department, dairy and egg section, meat market managers, etc. Farm, seed, fertilizer and supply stores need young men who are willing to assume managerial responsibilities. Large farm operators are seeking farm managers and herdsmen. Agricultural credit and financial concerns are seeking persons who are qualified as servicing agents for loans, appraisals and credit reports. Positions in sales servicing, processing, and marketing agricultural products are readily available to those persons who qualify.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T1004		Introduction to Agriculture	3	0	3
M0401		General Biology	3	2	4
M0317		Business Mathematics	5	0	5
G0201		Communication Skills I	<u>3</u>	<u>0</u>	<u>3</u>
Totals			14	2	15
SECOND QUARTER					
T1387		Farm Management I	2	2	3
T2201	M0317	Accounting I	3	0	3
T1125		Animal Science	4	2	5
T1270	M0401	Plant Science	<u>4</u>	<u>2</u>	<u>5</u>
Totals			13	6	16
THIRD QUARTER					
T2202	T2201	Accounting II	3	0	3
T2124		Office Machines	2	2	3
G0202	G0201	Communication Skills II	3	0	3
T1271	T1070	Soil Science & Fertilizers	4	2	5
G0600		Personal & Community Health	<u>2</u>	<u>0</u>	<u>2</u>
Totals			14	4	16



<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FOURTH QUARTER					
T2203	T2202	Accounting III	3	0	3
T1089		Advertising Farm Products	3	0	3
T1402		Farm Machinery I	3	0	3
T1388	T1087	Farm Management II	2	2	3
T		Business Elective	<u>3</u>	<u>0</u>	<u>3</u>
Totals			14	2	15

FIFTH QUARTER					
T2211	T2203	Cost Accounting	4	0	4
MO318	MO317	Math of Finance	4	0	4
T		Agriculture Elective	3	0	3
T2701		Commercial Law	<u>4</u>	<u>0</u>	<u>4</u>
Totals			15	0	15

SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
T2221	T2202	Federal Taxation	3	0	3
MO319	MO317	Statistics	4	0	4
T		Agriculture Elective	3	0	3
T		Business Elective	<u>3</u>	<u>0</u>	<u>3</u>
Totals			15	0	15

#### ORNAMENTAL HORTICULTURE TECHNICIAN

##### DESCRIPTION

A two-year, or six-quarter curriculum, the ornamental horticulture program is designed to help young men and women acquire knowledge, understanding and skills in the production, use, distribution and maintenance of ornamental plant materials.

##### GENERAL QUALIFICATIONS

A plant science background is desirable with an interest in outdoor and indoor plant beautification. Basic courses in botany and biology will be helpful.

## EMPLOYMENT

Opportunities for employment in the field have resulted from expanding public and private building construction along with an increasing emphasis on the use of plant materials for beautifying homes, commercial concerns, public facilities and highways.

Among the numerous employment opportunities for which the graduates of this curriculum qualify are nursery and greenhouse foremen, golf course and park maintenance supervisors, etc. The graduates will have developed abilities and understanding in reproduction, planting, cultivation and maintenance of a variety of ornamental plants essential for such positions in this rapidly expanding industry.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T1070		Plant Science	4	2	5
MO420		General Botany I	3	4	5
MO317		Business Mathematics	<u>5</u>	<u>0</u>	<u>5</u>
Totals			12	6	15
SECOND QUARTER					
G0201		Communication Skills I	3	0	3
MO421	MO420	General Botany II	3	4	5
MO434		Organic Chemistry I	3	2	4
T1220	T1070	Plant Materials I	<u>2</u>	<u>4</u>	<u>4</u>
Totals			11	10	16
THIRD QUARTER					
T1205		Soil Science & Fertilizers	4	2	5
T1206		Irrigation and Drainage	2	2	3
T1221	T1220	Plant Materials II	2	4	4
G0202	G0201	Communication Skills II	<u>3</u>	<u>0</u>	<u>3</u>
Totals			11	8	15

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FOURTH QUARTER					
T1204	MO434	Plant Pathology	3	2	4
T1260	MO420	Plant Propagation	3	2	4
T1262		Landscape Gardening I	3	2	4
T1270		Nursery Management I	<u>3</u>	<u>2</u>	<u>4</u>
Totals			12	8	16

FIFTH QUARTER					
T1263	T1261	Landscape Gardening II	3	2	4
T1271	T1270	Nursery Management II	3	2	4
G0210	G0201	Oral Communications	3	0	3
T1403		Farm Power	2	2	3
T		Elective	<u>2</u>	<u>0</u>	<u>2</u>
Totals			13	6	16

SIXTH QUARTER					
T1261	T1270	Greenhouse Management	3	2	4
T1274	T1261	Turf Grass Management	2	2	3
G3850	G0201	Introduction to the World of Work	2	0	2
T3015	MO317	Small Store Management	3	0	3
T		Elective	<u>3</u>	<u>0</u>	<u>3</u>
Totals			13	4	15

#### ANIMAL HOSPITAL TECHNICIAN

##### DESCRIPTION

A new and promising field , the animal hospital technician program provides training for men and women as veterinary assistants, animal research, clinical laboratory or small animal care technicians. To become a qualified candidate for employment in this occupation the course is two college years in length.

##### GENERAL QUALIFICATIONS

A student interested in pursuing a curriculum for an animal hospital technician should have a genuine concern for animals. The student must be a high school graduate or equivalent. Basic courses in biology and chemistry in high school will be helpful, but they are not required for

entry. The student must be physically and mentally qualified to meet the requirements of the curriculum.

## EMPLOYMENT

Occupational opportunities will include work as State and Federal research laboratory technicians, veterinary supply salesmen and buyers of poultry and livestock. In addition positions will be immediately available upon graduation as assistants to farm animal veterinarians as well as assistants to managers of small animal hospitals.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T1103		Introduction to Animal Hospital Procedures	3	0	3
G0201		Communication Skills I	3	0	3
T1007		Agricultural Biochemistry	3	2	4
M0300		Fundamentals of Mathematics	<u>5</u>	<u>0</u>	<u>5</u>
Totals			14	2	15
SECOND QUARTER					
M1105	T1103	Animal Science	4	2	5
T1111		Animal Nutrition	3	2	4
G0202	G0201	Communication Skills II	3	0	3
T1124		Small Animals	<u>3</u>	<u>0</u>	<u>3</u>
Totals			13	4	15
THIRD QUARTER					
T1112		Animal Anatomy & Physiology	3	4	5
M0316	M0300	Mathematics for Health Occupations	5	0	5
T1120	T1103	Animal Diseases & Parasites	2	2	3
G0210	G0201	Oral Communications	<u>3</u>	<u>0</u>	<u>3</u>
Totals			13	6	16

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
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#### FOURTH QUARTER

T1130		Animal Care	3	4	5
M0406	T1007	Microbiology	2	2	3
T1129		Animal Health & Sanitation	3	2	4
T0204	G0201	Report Writing	<u>3</u>	<u>0</u>	<u>3</u>
Totals			11	8	15

#### FIFTH QUARTER

T1131		Animal Breeding	2	4	4
T		Related Elective	3	0	3
T2150		Medical Coding & Filing	2	0	2
T1173		Soil & Wildlife Conservation	1	4	3
G0755		Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
Totals			11	8	15

#### SIXTH QUARTER

T1150		Animal Laboratory Techniques	2	8	6
G0850		Introduction to the World of Work	2	0	2
T0305		Purchasing	4	0	4
G0501		Consumer Economics	<u>3</u>	<u>0</u>	<u>3</u>
Totals			11	8	15

### AGRICULTURAL EQUIPMENT TECHNICIAN

#### DESCRIPTION

The curriculum in equipment technology for agriculture is designed to help students acquire knowledge, understanding and abilities needed in servicing, repairing, maintaining and demonstrating agricultural equipment. The ability to communicate effectively and understand the equipment will be an essential part of the curriculum to aid students in preparing for positions in agricultural equipment manufacturing, selling and servicing. Related subjects are included to give the student a broad practical base for occupational specialization in this area.

#### GENERAL QUALIFICATIONS

A farm background and some understanding of basic concepts of farm equipment is desirable. The student should be interested in and have a real

desire to be closely associated with the agriculture personnel. Mechanical aptitudes and interests must be above average for the student to be successful in this curriculum.

#### EMPLOYMENT

Graduates of this curriculum are in demand by manufacturers, distributors and service firms for such equipment items as sprayers, pumps, fuels and lubricants, livestock equipment, and farm building supplies in addition to farm machinery sales and service.

Wholesale and retail distributors of agricultural machinery and equipment especially need sales and service personnel who can plan, estimate cost, and supervise technical equipment and machinery procurement, installation, maintenance and repair.

For each agricultural engineer employed in the agricultural equipment industry, an estimated average of seven technically trained men are needed. Their duties are to assist in development and design or to insure proper service and maintenance of agricultural equipment.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T1004		Introduction to Agriculture	3	0	3
T1402		Farm Machinery I	2	2	3
G0201		Communication Skills I	3	0	3
T1387		Farm Management I	3	0	3
T3015		Small Store Management	<u>3</u>	<u>0</u>	<u>3</u>
Totals			14	2	15
SECOND QUARTER					
M0317		Business Mathematics	5	0	5
G0202	G0201	Communication Skills II	3	0	3
T1404	T1402	Farm Machinery II	2	4	4
T1430		Parts & Service Management	<u>3</u>	<u>2</u>	<u>4</u>
Totals			13	6	16

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
THIRD QUARTER					
G0203	G0202	Business Communication	3	0	3
T1405	T1404	Farm Machinery III	2	4	4
T2201		Accounting I	3	0	3
T3025		Salesmanship I	3	0	3
T1403		Farm Power	<u>2</u>	<u>2</u>	<u>3</u>
Totals			13	6	16
FOURTH QUARTER					
T1410		Tractor Engines I	4	2	5
G0210		Oral Communication	3	0	3
M0318	M0317	Mathematics of Finance	4	0	4
T3026	T3025	Salesmanship II	2	0	2
T1424		Applied Hydraulics	<u>1</u>	<u>2</u>	<u>2</u>
Totals			14	4	16
FIFTH QUARTER					
T1415		Agricultural Diesels I	4	2	5
T1420		Tractor Systems	2	4	4
M0319		Statistics	4	0	4
T3005		Principles of Retailing	<u>3</u>	<u>0</u>	<u>3</u>
Totals			13	6	16
SIXTH QUARTER					
T		Related Elective	3	0	3
G0850		Introduction to the World of Work	2	0	2
M0304		Mathematics for Diesels I	2	0	2
T3100		Principles of Advertising	3	0	3
G0211		Public Speaking	3	0	3
T3007		Principles of Wholesaling	<u>3</u>	<u>0</u>	<u>3</u>
Totals			16	0	16

# AGRICULTURAL EQUIPMENT MECHANIC

## DESCRIPTION

The curriculum for this program is three quarters or one college year in length. Upon satisfactory completion of the prescribed curriculum the student will be awarded an Occupational Certificate certifying his qualifications. The program of study will cover all types of repair, assembly, and servicing of tractors, combines, mowers, etc. Applied learning laboratories in which the student will be enrolled will develop skills and job proficiencies to handle hydraulics, welding, electrical and mechanical power system repairing.

## GENERAL QUALIFICATIONS

The student should have an above average mechanical aptitude and an excellent interest in mechanical devices and how they function. A farm background is helpful but not required.

## EMPLOYMENT

Both wholesale and retail distributors in agricultural equipment have immediate employment opportunities for these skills. The occupationally trained student will continue to have ample employment opportunities for his skill and mechanical specialization as the modern agriculture enterprise has become highly mechanized.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
GO201		Communication Skills	3	0	3
T1402		Farm Machinery I	2	2	3
T1403		Farm Power	2	2	3
T1410		Tractor Engines	4	2	5
T1431		Farm Shop	<u>1</u>	<u>4</u>	<u>3</u>
		Totals	12	10	17
SECOND QUARTER					
MO300		Fundamentals of Mathematics	5	0	5
T1404	T1402	Farm Machinery II	2	4	4
T1411	T1410	Tractor Engines II	4	2	5
T1424		Applied Hydraulics	<u>1</u>	<u>2</u>	<u>2</u>
		Totals	12	8	16



<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
THIRD QUARTER					
MO304		Mathematics for Diesels I	2	0	2
G0850		Introduction to the World of Work	2	0	2
T1405	T1404	Farm Machinery III	2	4	4
T1415		Agricultural Diesels I	4	2	5
T1420		Tractor Systems	<u>2</u>	<u>4</u>	<u>4</u>
Totals			12	10	17

## BUSINESS - COMMERCE

Business and commerce occupations for today's office employee are becoming more and more specialized through mechanization. Office training to keep pace with business practices and procedures has now progressed to the point that the employee is a technician. Many office machines such as electronic computers, bookkeeping and calculating machines have opened new opportunities to trained personnel in all office occupations. Business and industry meets the challenge with efficient methods of preparation and systematization of written communications and reports through well-trained employees who are specialists and can rapidly adjust to method changes.

Opportunities for employment as technician in Accounting, Secretarial Science and Electronic Data Processing are immediately open to young men and women who are trained and meet the requirements for such positions.

After finishing high school and with one to two years of business training at one of the Indiana Vocational Technical College's Regional Institutes a graduate will have no difficulty in obtaining one of many vacant office positions which now exist in Indiana.

## ACCOUNTING TECHNICIAN

### DESCRIPTION

The accounting course of study provides training and experiences in recording disbursements, expenses, tax payments and the maintenance of accounting controls over inventories and purchases. Training will also be provided in auditing, contracts, orders, budgeting and preparing accounting reports. Accounting technicians may also specialize in one of many accounting areas of cost, budgets, inventory, machine processing, property records, systems and taxes.

### GENERAL QUALIFICATIONS

The applicant must demonstrate an aptitude for business training as determined by standardized tests. Test results will also aid in student selection, placement and guidance. Counseling services will aid the student in selecting the proper course sequencing to assure that his training and experiences best qualify him as a technician in the area of accounting.

### EMPLOYMENT

A graduate as Accounting Technician may enter a variety of business

career opportunities as a management trainee. In addition to specific positions in accounting, the graduate may select careers with banks, small businesses, hotels, insurance companies, travel organizations, etc. at the time of graduation.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T2201		Accounting I	3	0	3
T2251		Introduction to Business	3	0	3
G0201		Communication Skills I	3	0	3
T2124		Office Machines	2	2	3
T3020		Credit Procedures	<u>3</u>	<u>0</u>	<u>3</u>
Totals			14	2	15
SECOND QUARTER					
T2202	T2201	Accounting II	3	0	3
G0202	G0201	Communication Skills II	3	0	3
M0317		Business Mathematics	5	0	5
M0320		Slide Rule and Graphs	2	0	2
T3050		Principles of Purchasing	<u>4</u>	<u>0</u>	<u>4</u>
Totals			17	0	17
THIRD QUARTER					
T2203	T2202	Accounting III	3	0	3
G0203	G0202	Business Communications	3	0	3
M0318	M0317	Mathematics of Finance	4	0	4
G		Humanities Elective	<u>5</u>	<u>0</u>	<u>5</u>
Totals			15	0	15
FOURTH QUARTER					
T2204	T2203	Accounting IV	3	0	3
G0204	G0203	Report Writing	3	0	3
T2281		Commercial Law	4	0	4
T2215	T2203	Principles of Automated Accounting	4	0	4
T2301		Introduction to Data Processing	<u>3</u>	<u>0</u>	<u>3</u>
Totals			17	0	17

<u>Course Number</u>	<u>Prereq. C. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T2211		Cost Accounting I	4	0	4
MO319	MO317	Statistics	4	0	4
T2221		Federal Taxation	3	0	3
T		Elective	3	0	3
T2340	T2301	Data Processing for Managers	<u>3</u>	<u>0</u>	<u>3</u>
Totals			17	0	17

#### SIXTH QUARTER

T2212	T2211	Cost Accounting II	4	0	4
T2231	T2204	Auditing	4	0	4
T		Elective	3	0	3
G		Humanities Elective	3	0	3
G0850		Introduction to the World of Work	<u>2</u>	<u>0</u>	<u>2</u>
Totals			16	0	16

### DATA PROCESSING MANAGEMENT TECHNICIAN

#### DESCRIPTION

This curriculum is designed to develop candidates for employment through training and experience to manage all operations of an electronic data processing section in modern business and industry. Emphasis will be placed on systems analysis, computer programming, key punching, and the wiring of control panels. Practical experience will also be acquired in wiring panels for collators, reproducers, calculators and accounting machines. A two-year or six-quarter program, the student will also receive training in accounting procedures, communications, and supervisory skills which will be needed after graduation to fulfill his career objective.

#### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. The applicant must demonstrate through testing an aptitude and sincere desire for a career in data processing. The candidate must be able to profit from such post-high school training.

## EMPLOYMENT

Upon graduation employment opportunities will be available in many institutions and industries. The application of data processing employment exists in banks, hospitals, education, government, manufacturing, wholesale and retailing, insurance and transportation organizations where career employment opportunities are immediately available.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T2301		Introduction to Data Processing	3	0	3
T2201		Accounting I	3	0	3
MO317		Business Mathematics	5	0	5
T2311		Tabulating Equipment	<u>3</u>	<u>8</u>	<u>5</u>
		Totals	14	8	16
SECOND QUARTER					
GO201		Communication Skills I	3	0	3
T2312		Introduction to Computer Programming	3	8	5
MO341		Technical Mathematics I	5	0	5
T2202	T2201	Accounting II	<u>3</u>	<u>0</u>	<u>3</u>
		Totals	14	8	16
THIRD QUARTER					
GO202	GO201	Communication Skills II	3	0	3
T2321	T2312	Programming Card Systems	5	8	7
MO342	MO341	Technical Mathematics II	5	0	5
T2124		Office Machines	<u>2</u>	<u>2</u>	<u>3</u>
		Totals	15	10	18
FOURTH QUARTER					
MO343	MO341	Technical Mathematics III	5	0	5
GO203	GO202	Business Communications	3	0	3
T2325		Programming Magnetic Tapes & Discs	5	8	7
T6001		Personnel Management for Unit Supervisors	<u>3</u>	<u>0</u>	<u>3</u>
		Totals	16	8	18

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T2211	T2202	Cost Accounting	4	0	4
T2330		Systems Design and Analysis I	7	8	9
G0211		Public Speaking	<u>3</u>	<u>0</u>	<u>3</u>
Totals			14	8	16

SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
T2331	T2330	Systems Design and Analysis II	7	8	9
M0319	M0341	Statistics	4	0	4
T6024		Industrial Psychology	<u>3</u>	<u>0</u>	<u>3</u>
Totals			16	8	18

#### COMPUTER PROGRAMMER AND MACHINE OPERATOR

##### DESCRIPTION

The program of computer programming and machine operations emphasizes the actual operation of the equipment. Such skills as panel wiring, data systems development, and key punching will be developed during a three quarter college year for which a technical diploma will be awarded. The courses taken within this curriculum will be transferable to the two year program in Data Processing Management if the student desires to pursue a position as a section manager.

##### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or equivalent. The applicants must demonstrate through testing an aptitude and sincere desire for a career in data processing. Students who have completed accounting and business programs of a post-high school nature may elect this data processing curriculum to update their skills in their present position for the purpose of becoming more promotable.

##### EMPLOYMENT

Opportunities exist for employment as assistants to the section manager for data processing. Data processing employment exists in banks,

hospitals, education, government, manufacturing, wholesaling and re-tailing, insurance and transportation organizations where opportunities for employment are immediately available.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T2301		Introduction to Data Processing	3	0	3
M0317		Business Mathematics	5	0	5
M2201		Accounting I	3	0	3
T2311		Tabulating Equipment	<u>3</u>	<u>8</u>	<u>5</u>
Totals			14	8	16

SECOND QUARTER					
G0201		Communication Skills I	3	0	3
T2312		Introduction to Computer Programming	3	8	5
M0341		Technical Mathematics I	5	0	5
T2101		Typing I	<u>2</u>	<u>2</u>	<u>3</u>
Totals			13	10	16

THIRD QUARTER					
G0202	G0201	Communication Skills II	3	0	3
T2321	T2312	Programming Card Systems	5	8	7
T2350		Key Punch Operation	1	12	4
T2124		Office Machines	<u>2</u>	<u>2</u>	<u>3</u>
Totals			11	22	17

#### SECRETARIAL SCIENCE TECHNICIAN (Executive, Legal and Medical)

#### DESCRIPTION

The secretarial science curriculum is six college quarters in length and provides for the student to specialize in one of three major areas of employment: Legal Secretary, Executive Secretary or Medical Secretary. Achievements in shorthand, typewriting and related skills

are developed and mastered. In each of the three areas of specialization the student will take specific courses which directly relate to the needs of the occupation:

The executive secretary supplements the secretarial subjects with courses in accounting, business law, business mathematics and human relations.

The legal secretary will supplement the secretarial subjects with specialized courses in legal office procedures, legal records preparation and basic law courses.

The medical secretary will supplement the secretarial subjects with courses in medical vocabulary, medical record keeping, and processing of related claim forms for medical insurance, life insurance, coroner reports, medicare records, etc.

#### GENERAL QUALIFICATIONS

Students enrolling in these secretarial programs should have a minimum of one year of typewriting and shorthand in high school. The applicant must demonstrate an aptitude for secretarial training and have a sincere interest in becoming associated with a specific area of specialization as a secretary.

#### EMPLOYMENT

For each secretarial specialist positions will be immediately available upon graduation in their career area. For the executive secretary, positions in business and industry departments in engineering, personnel, accounting, purchasing will afford opportunities for employment. In addition to serving as secretary to attorneys in private law firms, legal secretarial positions are also available with legal departments of private industries or the federal, state, county or city governments. Career employment for medical secretaries in a doctor's office, clinic, hospital, medical supply house, medical center, laboratory, or life insurance company.



# SUGGESTED CURRICULUM BY QUARTERS

## EXECUTIVE SECRETARY

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T2101		Typing I	2	2	3
G0201		Communication Skills I	3	0	3
M0317		Business Mathematics	5	0	5
T2124		Office Machines	2	2	3
T2251		Introduction to Business	<u>3</u>	<u>0</u>	<u>3</u>
Totals			15	4	17
SECOND QUARTER					
T2102	T2101	Typing II	2	2	3
T2131		Shorthand I	3	0	3
G0202	G0201	Communication Skills II	3	0	3
T0240		Terminology and Vocabulary Development for Secretarial Science Careers	3	0	3
T2201		Accounting I	<u>3</u>	<u>0</u>	<u>3</u>
Totals			14	2	15
THIRD QUARTER					
T2103	T2102	Typing III	2	2	3
T2132	T2131	Shorthand II	3	0	3
T0203		Business Communications	3	0	3
T2135		Machine Transcription	2	4	4
M		Science Elective	<u>3</u>	<u>2</u>	<u>4</u>
Totals			13	8	17
FOURTH QUARTER					
T0700		Introduction to Law	4	0	4
M0318		Mathematics of Finance	4	0	4
T2137		Advanced Dictation & Transcription	2	4	4
T0204		Report Writing	<u>3</u>	<u>0</u>	<u>3</u>
Totals			13	4	15

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T2139		Specialized Dictation and Transcription	3	2	4
M0319	M0317	Statistics	4	0	4
G0751		Personal and Social Adjustment	5	0	5
T		Business Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			16	2	17

#### SIXTH QUARTER

G0850		Introduction to the World of Work	2	0	2
T2152		Office Practices	4	0	4
T0505		Consumer Economics	3	0	3
T		Business Elective	3	0	3
G		General Education Elective	<u>3</u>	<u>0</u>	<u>3</u>
Totals			15	0	15

#### LEGAL SECRETARY

#### FIRST QUARTER

T2101		Typing I	2	2	3
G0201		Communication Skills	3	0	3
M0317		Business Mathematics	5	0	5
T2124		Office Machines	2	2	3
T2251		Introduction to Business	<u>3</u>	<u>0</u>	<u>3</u>
Totals			15	4	17

#### SECOND QUARTER

T2102	T2101	Typing II	2	2	3
T2131		Shorthand I	3	0	3
G0202	G0201	Communication Skills II	3	0	3
T0240		Terminology and Vocabulary			
		Development for Secretarial Science Careers	3	0	3
T2201		Accounting I	<u>3</u>	<u>0</u>	<u>3</u>
Totals			14	2	15

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class. Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
THIRD QUARTER					
T2103	T2102	Typing III	2	2	3
T2132	T2131	Shorthand II	3	0	3
T0203		Business Communications	3	0	3
T2135		Machine Transcription	2	4	4
M		Science Elective	<u>3</u>	<u>2</u>	<u>4</u>
Totals			13	8	17
FOURTH QUARTER					
T0700		Introduction to Law	4	0	4
M0318		Mathematics of Finance	4	0	4
M2137		Advanced Dictation and Tran- scription	2	4	4
T0204		Report Writing	<u>3</u>	<u>0</u>	<u>3</u>
Totals			13	4	15
FIFTH QUARTER					
T2139		Specialized Dictation and Transcription	3	2	4
T2281		Commercial Law	4	0	4
M0319	M0317	Statistics	4	0	4
G0751		Personal and Social Adjustment	<u>5</u>	<u>0</u>	<u>5</u>
Totals			16	2	17
SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
T2152		Office Practices	4	0	4
T0505		Consumer Economics	3	0	3
T		Business Elective	3	0	3
G		General Education Elective	<u>3</u>	<u>0</u>	<u>3</u>
Totals			15	0	15

MEDICAL SECRETARY

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T2101		Typing I	2	2	3
G0201		Communication Skills I	3	0	3
M0317		Business Mathematics	5	0	5
T2124		Office Machines	2	2	3
T2251		Introduction to Business	<u>3</u>	<u>0</u>	<u>3</u>
Totals			15	4	17
SECOND QUARTER					
T2102	T2101	Typing II	2	2	3
T2131		Shorthand I	3	0	3
G0202	G0201	Communication Skills II	3	0	3
T0245		Terminology and Vocabulary for Medical Careers	3	0	3
T2201		Accounting I	<u>3</u>	<u>0</u>	<u>3</u>
Totals			14	2	15
THIRD QUARTER					
T2103	T2102	Typing III	2	2	3
T2132	T2131	Shorthand II	3	0	3
M0401		General Biology	3	2	4
T0203		Business Communications	3	0	3
T2135		Machine Transcription	<u>2</u>	<u>4</u>	<u>4</u>
Totals			13	8	17
FOURTH QUARTER					
T2150		Medical Terminology and Shorthand	2	2	3
M0316		Mathematics for Medical Occupations	5	0	5
T2151		Medical Filing and Indexing	2	0	2
T0204		Report Writing	3	0	3
T0755		Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
Totals			15	2	16

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T2139		Specialized Dictation and Transcription	3	2	4
T1103		Physiology and Anatomy	3	0	3
MO319	MO317	Statistics	4	0	4
G0751		Personal and Social Adjustment	<u>5</u>	<u>0</u>	<u>5</u>

Totals	15	2	16
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#### SIXTH QUARTER

G0850		Introduction to the World of Work	2	0	2
T2152		Office Practices	4	0	4
MO406		Microbiology	2	2	3
TO505		Consumer Economics	3	0	3
T		Business Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			15	2	16

#### STENOGRAPHER

##### DESCRIPTION

This curriculum prepares the student for office clerical positions requiring excellent typewriting, office machines, recordkeeping skills. Machine dictation, correspondence English and statistical typing and filing will be mastered by the student. A one-year or three-college-quarter program, primary emphasis is placed on building typing and machine operation skills.

##### GENERAL QUALIFICATIONS

Students having no previous office training in high school may enroll in this program. The applicant will be required to demonstrate an aptitude for clerical skills and have a sincere interest in being employed in stenographic work.

##### EMPLOYMENT

Stenographers have many opportunities for employment in business and industrial offices. Among the positions for which stenographic training provides opportunities for employment are clerks in payroll, pur-

chasing, personnel, engineering, and production control departments of industry. Such positions are also available in many chain stores, re-tailing and wholesaling institutions.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T2251		Introduction to Business	3	0	3
T2101		Typing I	2	2	3
GO201		Communication Skills I	3	0	3
MO317		Business Mathematics	5	0	5
T2124		Office Machines	<u>2</u>	<u>2</u>	<u>3</u>
Totals			15	4	17

#### SECOND QUARTER

T2102	T2101	Typing II	2	2	3
T2201		Accounting I	3	0	3
TO240		Terminology and Vocabulary Development for Secretarial Science Careers	3	0	3
GO202		Communication Skills II	3	0	3
T2135		Machine Transcription	<u>2</u>	<u>4</u>	<u>4</u>
Totals			14	4	16

#### THIRD QUARTER

T2103	T2102	Typing III	2	2	3
GO850		Introduction to the World of Work	2	0	2
TO203		Business Communications	3	0	3
T2152		Office Practices	4	0	4
GO751		Personal and Social Adjustment	<u>5</u>	<u>0</u>	<u>5</u>
Totals			16	2	17

#### KEY PUNCH OPERATOR

##### DESCRIPTION

The Key Punch Operator curriculum offers training in the use of the equipment for recording information from source documents onto the

punched card form. These punched cards are used extensively in data processing applications. The curriculum is two college quarters in length.

The course also includes training in the basic principles of machine accounting and their applications, and drum card programming. Orientation on punched card equipment used at existing data processing centers is introduced.

#### GENERAL QUALIFICATIONS

At least three years of high school, and the ability to type 30 words per minute are recommended. All applicants are given a qualifying examination and an interview before acceptance.

#### EMPLOYMENT

Employment is immediately available in all areas of industry and business today. Key punch operators are needed in every application of data processing which exists in banks, hospitals, education, government, manufacturing, insurance and transportation organizations.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T2251		Introduction to Business	3	0	3
T2101		Typing I	2	2	3
G0201		Communication Skills I	3	0	3
M0317		Business Mathematics	5	0	5
T2124		Office Machines	<u>2</u>	<u>2</u>	<u>3</u>
Totals			15	4	17
SECOND QUARTER					
T2102	T2101	Typing II	2	2	3
T2301		Introduction to Data Processing	3	0	3
T0240		Terminology and Vocabulary			
		Development for Secretarial			
		Science Careers	3	0	3
G0202		Communication Skills II	3	0	3
T2135		Machine Transcription	<u>2</u>	<u>4</u>	<u>4</u>
Totals			14	4	16

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
THIRD QUARTER					
T2350		Key Punch Operation	1	12	4
G0850		Introduction to the World of Work	2	0	2
T0203		Business Communications	3	0	3
T2152		Office Practices	4	0	4
G0751		Personal and Social Adjustment	<u>5</u>	<u>0</u>	<u>5</u>
Totals			15	12	18



## DISTRIBUTIVE EDUCATION

The Distributive Education program provides specialized education and training for those persons entering and already employed in retail, wholesale and service occupations. Distributive Education graduates are on the job in thousands of retail stores and businesses, large and small, in towns and cities throughout the nation.

This technical program is a combination of classroom instruction and actual supervised work. Experience is gained in distributive occupations through special program developed cooperatively by merchants and educators. Such jobs may be found in various businesses, including but not limited to retailing, wholesaling, manufacturing, storing, transporting, financing hotels and restaurants. In our rapidly changing economy, many changes and much growth have taken place in the field which increases the need for trained personnel. First, there is an increasing number of occupations which require specialized knowledge of a product, the uses of a product, and other factors involving the customer and the product. Second, there are increasing numbers of supervisory or mid-management occupations requiring an understanding of the human relations of business, in addition to technical knowledge and skill directly related to the operational responsibility.

The Distributive Education Instructors are competent teachers who have specialized business experience in marketing. With this combination of qualifications, the "teacher-coordinator" is prepared to help the Distributive Education student in his learning experiences in the school and on the job.

Students may attend the college on a part-time basis and work as regular wage earning employees part-time.

Many students find excellent full-time positions through this part-time work while a student, and others gain valuable exploratory occupational experience.

## DISTRIBUTION TECHNICIAN

### DESCRIPTION

The curriculum for distribution (marketing) technician emphasizes the sales aspects of product distribution. Background courses are taken in wholesaling and retailing, advertising, purchasing and sales management, and business. Within the two-year, six-quarter curriculum are provisions for technical electives which permit the student to enhance his knowledge with regard to a specialized area of distribution.

### GENERAL QUALIFICATIONS

The student should be interested in and have a real desire to be closely

associated with sales and product distribution or management of a small retail or wholesale business. To enter the program and be successful, the student should have both a sales and management aptitude. Pre-technical courses may be required prior to entry into the specialized training courses.

## EMPLOYMENT

Graduates of this curriculum are in demand by manufacturers, distributors and service firms.

Wholesale and retail distributors of machinery and equipment especially need sales and service personnel who can plan, estimate cost, and supervise technical equipment and machinery procurement and installation.

Specialization for employment will be planned between the student and the faculty advisor who will serve as the student's coordinator for his internship. Such planning for technical courses and the last-quarter internship should take place before the student enters the third quarter.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T3001		Introduction to Distributive Education	3	0	3
G0201		Communication Skills I	3	0	3
T2124		Office Machines	2	2	3
T3005		Principles of Retailing	3	0	3
M0300		Fundamentals of Mathematics	<u>5</u>	<u>0</u>	<u>5</u>
Totals			16	2	17

SECOND QUARTER					
T3017		Distributive Occupational Research and Analysis	3	0	3
T2201		Accounting I	3	0	3
G0202	G0201	Communication Skills II	3	0	3
T3007		Principles of Wholesaling	3	0	3
M0317		Business Mathematics	<u>5</u>	<u>0</u>	<u>5</u>
Totals			17	0	17

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
THIRD QUARTER					
T2202	T2201	Accounting II	3	0	3
T3015		Small Store Management	3	0	3
T3025		Salesmanship I	2	0	2
T3100		Principles of Advertising I	3	0	3
T3050		Principles of Purchasing	<u>4</u>	<u>0</u>	<u>4</u>
Totals			15	0	15

FOURTH QUARTER					
T3026	T3025	Salesmanship II	2	0	2
MO318	MO317	Mathematics of Finance	3	0	3
T6001		Personnel Administration	4	0	4
T3101	T3100	Principles of Advertising II	2	0	2
T		Distributive Education Elective	3	0	3
T		Distributive Education Elective	<u>3</u>	<u>0</u>	<u>3</u>
Totals			17	0	17

FIFTH QUARTER					
T3102		Display Advertising	3	0	3
MO319		Statistics	4	0	4
T3020		Credit Procedures	3	0	3
T		Distributive Education Elective	3	0	3
G		General Education Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			17	0	17

SIXTH QUARTER					
T3103		Visual Merchandising	3	0	3
G0850		Introduction to the World of Work	2	0	2
T3027		Sales and Market Management	4	0	4
T3420		Distributive Education Internship	<u>1</u>	<u>21</u>	<u>8</u>
Totals			10	21	17

#### HOTEL - MOTEL MANAGEMENT

##### DESCRIPTION

The entire program of hotel-motel hospitality training is developed in such a manner that the student actually participates in all phases of inn-keeping.

The student works in the phase of operation which matches his area of

study for an allotted time.

He will attain a background for solving problems, an awareness of the everchanging social and economical conditions under which he will operate, and the ability to make decisions in management after minimum field experience.

The student will acquire an understanding of various factors bearing upon the business through law, psychology, advertising, textiles, interior decorating, communication skills, food buying and preparation, and merchandising through service.

This course of study presents to the student a history and background of the hospitality industry, communication and language skills, basic to advanced culinary preparation and service, menu making, and nutritional study, hotel-motel auditing, business and hotel law, psychology, housekeeping and maintenance procedures, beverage controls, food, beverage and labor costs, labor-administration relationships, business study, principles of purchasing and personnel administration.

#### GENERAL QUALIFICATIONS

The applicant must demonstrate an aptitude for management training as determined by standardized tests. Test results will also aid in student selection, placement and guidance. Counseling services will aid the student in selecting the proper course sequencing to assure that his training and experiences best qualify him as a Hotel-Motel Manager after experience in the field.

#### EMPLOYMENT

Graduates will find employment as room clerks, waiters, hosts, executive secretaries, convention managers, auditors, bellmen, and managers of hotels and motels.

Employment as chef trainees (sous chef), cooks, storekeepers, catering managers, purchasing agents, food controllers, pastry cooks, and pastry chefs are also available as entry positions within the industry.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
T3500		Intro. to Hospitality Careers	1	0	1
G0201		Communication Skills I	3	0	3
T3560		Culinary Arts I	2	0	3
T3504		Hotel-Motel Maintenance	2	6	4
M0317		Business Mathematics	<u>5</u>	<u>0</u>	<u>5</u>
Totals			13	6	16

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SECOND QUARTER					
T2201		Accounting I	3	0	3
T3562		Culinary Arts II	2	3	3
G0750		General Psychology	5	0	5
T3508		Hotel-Motel Front Desk and Bell-Boy	1	6	3
T3524		Dining Room Procedures	1	3	2
T3550		Nutrition I	<u>2</u>	<u>0</u>	<u>2</u>
Totals			14	12	18
THIRD QUARTER					
T3506		Hotel-Motel Accounting and Auditing	1	6	3
T3564		Culinary Arts III	2	3	3
T3518		Menu Planning	2	0	2
T3551		Nutrition II	2	3	3
T3514		Club-Resort Problems	2	0	2
T2281		Commercial Law	<u>4</u>	<u>0</u>	<u>4</u>
Totals			13	12	17
FOURTH QUARTER					
T3512		Hotel-Motel Layout and Decoration	3	0	3
T3566		Culinary Arts IV	2	3	3
T6001		Personnel Administration	4	0	4
G0211	G0201	Public Speaking	3	0	3
*M0312		Mathematics for Chefs	3	0	3
T3528		Advertising & Sales Promotion	<u>2</u>	<u>0</u>	<u>2</u>
Totals			17	3	18
FIFTH QUARTER					
T3584		Kitchen Management and Intern- ship	1	18	7
T3568		Culinary Arts V	2	3	3
T3580		Buffet Preparation & Service	1	3	2
T3550		Purchasing Principles	4	0	4
T3536		Civic Promotion and Relations	<u>2</u>	<u>0</u>	<u>2</u>
Totals			10	24	18

\*Course 3590, Housekeeping, may be substituted.

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SIXTH QUARTER					
G0203		Business Communications	3	0	3
T3570		Culinary Arts VI	2	3	3
T3540		Hotel-Motel Internship	1	12	5
G0850		Introduction to the World of Work	2	0	2
T3552		Volume Food Management	<u>3</u>	<u>0</u>	<u>3</u>
Totals			11	15	16

#### CHEF MANAGER OR INSTITUTIONAL FOOD SERVICE SUPERVISOR

##### DESCRIPTION

The entire program of kitchen management training is developed in such a manner that the student actually participates in all phases of food preparation and serving. The student works in the phase of preparation which matches his area of classroom study. The program is geared to guide the student into supervisory positions and enlighten him to be able to assume administrative responsibilities. He will learn the opportunities and responsibilities of management, an appreciation of the role of the food service supervisor, an understanding of professional and community resources available to food service personnel, and an interest and sincere desire for growth in the food service industry.

This course of study presents to the student a history of the food preparation industry, communication and language skills, business mathematics, basic psychology, labor-administration relationships, personnel administration, blueprint reading and kitchen layout, sanitation, storing and issuing of food, recipe and formula interpretations, short order cookery, baking, soups and sauces, methods in meat cookery, meat cookery, meat analysis and fabrication, pantry skills, seafoods, pre-cost and pre-control procedures, menu and nutritional study, purchasing principles, beverages, and culminating with an opportunity to manage the laboratory kitchen under the supervision of the instructor.

##### GENERAL QUALIFICATIONS

The applicant must be a high school graduate or have the equivalent training. He must have a pre-medical examination consisting mainly of chest x-ray to establish the fact that the student is not a carrier of communicable disease to meet local, State Board of Health and College requirements. The student should have an interest in and a real desire to become associated with the food service and distribution industry.

## EMPLOYMENT

Employment areas are open to the student upon graduation as the Chef Manager or Food Service Supervisor, sous chef, cook, storekeeper, purchasing agent, food controller, pastry cook and pastry chef.

Diversified employment places include hotels, motels, hospitals, resorts and country clubs, restaurants, cafeterias, shipping lines, air lines, catering and institutions.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T3560		Culinary Arts I	2	3	3
T3561		Advanced Culinary Arts I	1	15	6
T3500		Introduction to Hospitality Careers	1	0	1
G0201		Communication Skills I	3	0	3
M0312		Mathematics for Chefs	3	0	3
T3550		Nutrition I	<u>2</u>	<u>0</u>	<u>2</u>
Totals			12	18	18
SECOND QUARTER					
T3562		Culinary Arts II	2	3	3
T3563		Advanced Culinary Arts II	1	12	5
T3551		Nutrition II	2	0	2
M0317		Business Mathematics	5	0	5
T3552		Volume Food Management	<u>3</u>	<u>0</u>	<u>3</u>
Totals			13	15	18
THIRD QUARTER					
T3564		Culinary Arts III	2	3	3
T3565		Advanced Culinary Arts III	1	12	5
G0750		General Psychology	5	0	5
G0211	G0201	Public Speaking	3	0	3
T3518		Menu Planning	<u>2</u>	<u>0</u>	<u>2</u>
Totals			13	15	18

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FOURTH QUARTER					
T3566		Culinary Arts IV	2	3	3
T3567		Advanced Culinary Arts IV	1	12	5
T3524		Dining Room Procedures	1	3	2
T6001		Personnel Administration	4	0	4
T2281		Commercial Law	<u>4</u>	<u>0</u>	<u>4</u>
Totals			12	18	18
FIFTH QUARTER					
T3568		Culinary Arts V	2	3	3
T3569		Advanced Culinary Arts V	1	12	5
T3580		Buffet Preparation & Service	1	3	2
T3584		Kitchen Management Internship	<u>1</u>	<u>18</u>	<u>7</u>
Totals			5	36	17
SIXTH QUARTER					
T3570		Culinary Arts VI	2	3	3
T3571		Advanced Culinary Arts VI	1	12	5
G0850		Introduction to the World of Work	2	0	2
T3586		Internship for Restaurant Management	<u>1</u>	<u>18</u>	<u>7</u>
Totals			6	33	17



## HEALTH OCCUPATIONS

The delivery of health services is one of the nation's fastest growing industries. In the United States, nearly three million men and women are currently employed in the Health Services. If the student's desire for employment is close to home or around the nation or the world, opportunities will be immediately available for those who prepare themselves for careers in a health service. Within the health occupations rewarding careers as a Medical Laboratory Assistant, Dental Assistant, Practical Nurse, Operating Room Technician and X-Ray Technician are immediately available for the well-trained candidate for employment.

### X-RAY TECHNOLOGY

#### DESCRIPTION

X-ray Technology is a two year program offered by the College as a cooperating educational institution with affiliated hospital approved schools of Radiologic Technology accredited by the American Registry of Radiologic Technologists. This curriculum introduces the student to the principles of radiologic technique, exposure, therapy, positioning, and ethics and is conducted with a clinical practice and supplemental instruction in the accredited hospitals.

#### GENERAL QUALIFICATIONS

All students admitted to the program of X-ray technology must be accepted by the approved schools of radiologic technology prior to their admission to class. General requirements are graduation from high school and an aptitude and sincere desire for a career in radiologic technology.

#### EMPLOYMENT

Upon graduation and successful examination by the American Registry of Radiologic Technologists, employment opportunities are available in hospitals, industries, and clinics throughout the state and nation.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
MO410		Anatomy and Physiology	3	0	3
MO406		Microbiology	2	4	3
MO316		Applied Mathematics	2	0	2
TO245		Medical Terminology	3	0	3
T4010		Radiation Physics	3	1	3
T4004		Office Skills & Procedures	3	0	3
T4005		Nursing Procedures of X-Ray Technicians	1	0	1
T4020		X-Ray Techniques	4	2	5
T4030		X-Ray Clinical Practices I	<u>0</u>	<u>8</u>	<u>4</u>
Total			21	15	27

SECOND QUARTER					
T4040		Principles of Radiation Exposure I	2	0	2
T4050		Radiographic Positioning I	2	0	2
070		Professional Adjustment I	1	0	1
060		Film Critique I	0	3	1
031		X-Ray Clinical Practices II	<u>0</u>	<u>32</u>	<u>12</u>
Total			5	35	18

THIRD QUARTER					
T4041		Principles of Radiation Exposure II	2	0	2
T4051		Radiographic Positioning II	2	0	2
T4071		Professional Adjustments II	1	0	1
T4061		Film Critique II	0	3	1
T4032		X-Ray Clinical Practices III	<u>0</u>	<u>32</u>	<u>12</u>
Total			5	35	18

FOURTH QUARTER					
T4042		Principles of Radiation Exposure III	2	0	2
T4052		Radiographic Positioning III	2	0	2
T4072		Professional Adjustments III	1	0	1
T4062		Film Critique III	0	3	1
T4033		X-Ray Clinical Practices IV	<u>0</u>	<u>32</u>	<u>12</u>
Total			5	35	18

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T4053		Radiographic Positioning IV	2	0	2
T4080		Special Procedures I (X-Ray)	2	0	2
T4095		Departmental Administration	1	0	1
T4063		Film Critique IV	0	3	1
T4034		X-Ray Clinical Practices V	<u>0</u>	<u>32</u>	<u>12</u>
Total			5	35	18
SIXTH QUARTER					
T4054		Radiographic Positioning	2	0	2
T4081		Special X-Ray Procedures II	2	0	2
T4096		Departmental Administration II	1	0	1
T4064		Film Critique V	0	3	1
T4035		X-Ray Clinical Practices VI	<u>0</u>	<u>32</u>	<u>12</u>
Total			5	35	18
SEVENTH QUARTER					
T4015		Radiation Therapy	2	0	2
T4014		Isotopes	1	0	1
T4082		Special X-Ray Procedures III	2	0	2
T4007		Equipment Maintenance	1	0	1
T4065		Film Critique VI	0	3	1
T4036		X-Ray Clinical Practices VII	<u>0</u>	<u>32</u>	<u>12</u>
Total			6	35	19
EIGHTH QUARTER					
T4011		Tomography Anatomy	1	0	1
T4012		Surgical Diseases	1	0	1
T4013		Film Quality	1	0	1
T4066		Film Critique VII	0	3	1
T4090		General Examination Review	2	0	2
T4037		X-Ray Clinical Practices VIII	<u>0</u>	<u>32</u>	<u>12</u>
Total			5	35	18

## MEDICAL ASSISTANT

### DESCRIPTION

This curriculum is designed to offer an educational opportunity for women to develop the skills needed for employment as a medical assistant. Courses are offered in anatomy and physiology, medical assisting techniques, as well as secretarial skills necessary for successful employment in physicians offices and clinics.

### GENERAL QUALIFICATIONS

This program accepts only women students and she must be a high school graduate or equivalent. The applicant must evidence an aptitude for secretarial studies and an interest in the medical application of these skills.

### EMPLOYMENT

Opportunities exist in physicians' offices and clinics for medical assistants throughout the state of Indiana and the nation. It is expected that women completing this program and successfully pursuing their career in a physicians' office or clinic will take the national certifying examination offered by the American Association of Medical Assistants.

### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
MO410		Anatomy and Physiology	3	0	3
TO245		Medical Terminology	3	0	3
T4301		Introduction to the Study of Diseases	2	0	2
GO755		Human Relations I	3	0	3
T2101		Typing I	2	2	3
T4820		Medical Assistant Techniques I	3	2	4
TO406		Microbiology	<u>2</u>	<u>4</u>	<u>3</u>
Total			18	8	21

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SECOND QUARTER					
T2201		Accounting I	3	0	3
T2102	T2101	Typing II	2	2	3
G4808		Medical Law & Economics I	3	0	3
T4004		Office Skills & Procedures	3	0	3
T4840		Medical Laboratory Orientation	2	0	2
T4821	T4820	Medical Assistant Techniques II	<u>3</u>	<u>3</u>	<u>4</u>
Total			14	5	18

THIRD QUARTER					
T4809	T4808	Medical Law & Economics II	3	0	3
T2103	T2102	Typing III	2	2	3
T4350		Human Relations for Health Occupations	2	0	2
G0610		Safety and First Aid	2	0	2
T4822	T4821	Medical Assistant Techniques III	2	2	3
T4850		Medical Assistant Clinical Experience	<u>0</u>	<u>6</u>	<u>2</u>
Total			11	10	15

### PRACTICAL NURSING

#### DESCRIPTION

This program is designed to meet the requirements of the Indiana State Board of Nurses' Registration and Education to prepare the candidate for licensure as a practical nurse in the state of Indiana. A licensed practical nurse works under the supervision of a physician or registered nurse in caring for patients, including medical and surgical patients, new-born and their mothers, convalescents, and the aged. This 52-week program offers courses of studies in anatomy and physiology, nursing skills, conditions of illness, nutrition and personal and community health.

#### GENERAL QUALIFICATIONS

The candidate for admission for this program must be a minimum of 17 years of age, of good moral character, a citizen of the United States or have filed a legal declaration of intention to become a citizen. All applicants shall have successfully completed two years of high school or passed satisfactorily a two year high school equivalency test. A complete health examination is required of all applicants. This

examination includes a physical and dental examination, chest x-ray, serology, and vaccination against small pox.

## EMPLOYMENT

LPNs work under the supervision of a physician or registered nurse in hospitals, nursing homes, as private health nurses and as private duty nurses. Opportunities for employment are found throughout the state of Indiana and the nation.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0410		Anatomy and Physiology	3	0	3
T4301		Introduction to the Study of Diseases	2	0	2
T4510		Nursing Skills I	6	9	9
G0755		Human Relations	3	0	3
M0316		Applied Mathematics	<u>2</u>	<u>0</u>	<u>2</u>
		Total	16	9	19
SECOND QUARTER					
T4511	T4510	Nursing Skills II	4	1	4
G4520		Nutrition	4	0	4
T4530		Conditions of Illness I	4	0	4
T4550		LPN Clinical Experiences I	<u>0</u>	<u>24</u>	<u>9</u>
		Total	12	25	21
THIRD QUARTER					
T4350		Human Relations for Health Occupations	2	0	2
T4531	T4530	Conditions of Illness II	5	0	5
T4551	T4550	LPN Clinical Experiences II	<u>0</u>	<u>32</u>	<u>9</u>
		Total	7	32	16

<u>Course</u> <u>Number</u>	<u>Rec.</u> <u>Compl.</u>	<u>Description</u>	<u>Class</u> <u>Hours</u>	<u>Lab.</u> <u>Hours</u>	<u>Credits</u>
FOURTH QUARTER					
Th560		Maternal and Child Health	6	0	6
Th552		LPN Clinical Experiences III	<u>0</u>	<u>32</u>	<u>12</u>
Total			6	32	18

#### MEDICAL LABORATORY ASSISTANT

##### DESCRIPTION

The aim of the medical laboratory assistant program is to provide qualified men and women with an opportunity to prepare as safe and reliable functioning members of the laboratory team; specifically to perform routine laboratory tests under the supervision of qualified persons. The one-year program encompasses a balance of theory, laboratory practice and clinic application. Standards for the laboratory assistant program have been established by the Board of Certified Laboratory Assistants, approved by the Council on Medical Education of the American Medical Association. Students who satisfactorily complete the prescribed studies are eligible and expected to take the certified laboratory assistants' national examination. A satisfactory score on this examination entitles the graduate to use the title " Certified Laboratory Assistant " (CLA) after his name.

##### GENERAL QUALIFICATIONS

Applicants must have a high school diploma or equivalent, and it is strongly recommended that the student have one year of high school chemistry. Additional high school courses suggested are physical and biological sciences and mathematics.

##### EMPLOYMENT

The Certified Laboratory Assistant will find employment opportunities in public and private clinical laboratories, private offices, public health agencies and industrial, research, and pharmaceutical laboratories.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0410		Anatomy and Physiology	3	0	3
T4301		Introduction to the Study of Diseases	2	0	2
G0755		Human Relations	3	0	3
M0316		Applied Mathematics	2	0	2
T4310		Laboratory Techniques I	6	9	9
M0406		Microbiology	<u>2</u>	<u>4</u>	<u>3</u>
Total			18	13	22
SECOND QUARTER					
T4311	T4310	Laboratory Techniques II	3	3	4
T4320		MLA Clinical Experiences I	<u>0</u>	<u>30</u>	<u>12</u>
Total			3	33	16
THIRD QUARTER					
T4350		Human Relations for Health Occupations	2	0	2
T4340		Medical Bacteriology & Serology	5	15	10
T4360		Clinical Chemistry	3	10	6
T4312	T4311	Laboratory Techniques III	<u>2</u>	<u>5</u>	<u>4</u>
Total			12	30	22
FOURTH QUARTER					
T4313	T4312	Laboratory Techniques IV	3	3	4
T4321	T4320	MLA Clinical Experiences II	<u>0</u>	<u>34</u>	<u>12</u>
Total			3	37	16
4 WEEKS OF FIFTH QUARTER					
T4314		Laboratory Technicals V	3	3	2
T4322	T4321	MLA Clinical Experiences III	<u>0</u>	<u>34</u>	<u>6</u>
Total			3	37	8



## OPERATING ROOM TECHNICIAN

### DESCRIPTION

This curriculum is designed to prepare the graduate to work in a hospital or clinic as a member of the surgical team. The student studies anatomy and physiology, surgical anatomy, aseptic technique and selected nursing procedures. During the second and third quarter of the program, the student receives clinical experience in the operating rooms of cooperating clinical institutions. A fourth quarter of training is available that prepares the student through additional studies and experience to function as an employee in hospital emergency rooms and emergency clinic facilities.

### GENERAL QUALIFICATIONS

Students admitted to the Operating Room Technician program should be high school graduates or the equivalent, in good health and have a high degree of manual dexterity.

### EMPLOYMENT

Opportunities for employment are found in hospitals, operating rooms and emergency care units throughout the state and nation.

Additionally graduates are also being utilized in pharmaceutical and animal research centers of industrial firms.

### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
MO410		Anatomy and Physiology	3	0	3
GO755		Human Relations	3	0	3
T4710		Operating Room Techniques	6	9	9
T4704		Common Surgical Conditions	4	2	5
MO406		Microbiology	<u>2</u>	<u>4</u>	<u>5</u>
Total			18	15	25

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SECOND QUARTER					
T4720		Surgical Procedures I	5	2	6
T4730		OR Clinical Experiences I	<u>0</u>	<u>30</u>	<u>12</u>
		Total	5	32	18

THIRD QUARTER					
T4721	T4720	Surgical Procedures	4	2	5
T4350		Human Relations for Health Occupations	2	0	2
T4731	T4730	OR Clinical Experiences II	<u>0</u>	<u>30</u>	<u>12</u>
		Total	6	32	19

FOURTH QUARTER (Optional)					
T4760		Emergency Room Techniques	3	0	3
T4732	T4731	OR Clinical Experiences III	<u>0</u>	<u>30</u>	<u>15</u>
		Total	3	30	18

#### DENTAL ASSISTANT

##### DESCRIPTION

This curriculum is designed to prepare graduates for work in a dental office or dental clinic. The most routine duties consist of preparing the instruments and the patient and assisting with the treatment. This may include sterilizing instruments, preparing materials and aiding the patient. The assistant is also trained to develop x-ray films and explain post-operative care and preventive dentistry to the patient. The assistant is additionally trained for secretarial duties consisting of sending bills, keeping records and making appointments.

##### GENERAL QUALIFICATIONS

General entrance requirements include graduation from high school or the equivalent. The applicant must be in general good health and evidence good manual dexterity and a desire for a career as a dental assistant.

EMPLOYMENT

Dental assistants are utilized throughout the state and nation in dental offices and dental clinics.

SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
M0410		Anatomy and Physiology	3	0	3
T5005		Dental Anatomy	2	0	2
T2101		Typing I	2	2	3
G0755		Human Relations	3	0	3
T5020		Dental Assisting Techniques I	3	6	4
T4004		Office Skills and Procedures	3	0	3
M0406		Microbiology	<u>2</u>	<u>4</u>	<u>3</u>
Total			18	12	21
SECOND QUARTER					
T2201		Accounting I	3	0	3
T2102	T2101	Typing II	2	2	3
G4808		Medical Law and Economics I	3	0	3
T5021	T5020	Dental Assisting Techniques II	3	3	4
T5050		Clinical Experiences I	<u>0</u>	<u>12</u>	<u>4</u>
Total			11	17	17
THIRD QUARTER					
G0610		Safety and First Aid	2	0	2
T2103	T2102	Typing III	2	2	3
T4350		Human Relations for Health Occupations	2	0	2
T5022	T5021	Dental Assisting Techniques III	3	3	4
T5051	T5050	Clinical Experiences II	<u>0</u>	<u>12</u>	<u>4</u>
Total			9	17	15

## TRADE AND INDUSTRIAL TECHNICIANS AND SKILLED OCCUPATIONS

A curriculum for an industrial technician or a skilled occupation emphasizes the actual experiences the graduate will encounter on the job. Simulated work experiences are provided to support the activities of the engineer by preparing formal reports and experiments, tests and other projects. The technician carries out such functions such as drafting surveying, technical sales, advising consumers, and teaching or training in the specialized area for skilled craftsmen.

Skilled occupations prepare craftsmen for modern trade and industry. A craftsman is one who is trained to do skilled work and to use precision tools and instruments to build, operate and maintain the many useful products and works with scientists, engineers, and technicians as a member of the team. The employment outlook for the skilled craftsman is for continued expansion and growth in the years ahead. Each year there are more opportunities for skilled workers as industry is expanding rapidly and new products are constantly being developed. The increase in the number of skilled craftsmen needed has resulted from the increasing mechanization and more complex machinery in many manufacturing industries, the growing number and complexity of automobiles, and a greater use of electrical and mechanical appliances at home. This increase has also resulted in an increased number of automobile mechanics, aviation mechanics, office machine repairmen, and television and radio servicemen.

Preference for entrance into these programs is given high school graduates. High school courses should include as many mathematics and science courses as possible. High school drafting courses also provide a definite advantage toward success in both technical and skilled occupations programs.

Major Trade and Industry Technical Areas are identified as follows:

Management Training and Development	6000 - 6099
Airframe and Power Plant Technicians	6100 - 6199
Air-Conditioning and Refrigeration Technicians	6200 - 6299
Graphic and Commercial Art Technicians	6300 - 6399
Drafting and Design Technicians	6400 - 6499
Electronic and Instrumentation Technicians	6500 - 6599
Diesel and Automotive Technicians	6600 - 6699
Chemical and Metallurgical Technicians	6700 - 6799
Tool Machine and Maintenance Technicians	6800 - 6899
Welding Technician	6900 - 6999
Buildings and Grounds Technician	7000 - 7099
Building Construction Technician	8000 - 8099

## MANAGEMENT TRAINING AND DEVELOPMENT

### DESCRIPTION

The Management Training and Development curriculum provides training for full-time adult employees in business and industry who wish to prepare themselves for greater responsibilities--especially in the areas as technicians, supervisors, and mid-management positions. It also provides an opportunity for employees already in these categories to further develop basic and well-rounded educational experiences to supplement their job experience.

Individual courses are structured to give a broad understanding of the principles of supervision and management as well as the fundamental techniques and skills for efficient and effective application. Studies in supervision, training techniques, economics, organization and management, personnel management leadership, with specialized courses in materials management, work simplification and labor law make up the curriculum.

Two curricula are offered by the college. A two-year management trainee technician curriculum is offered for full-time students in conjunction with a specific skilled occupation. The second curriculum is offered for full-time employees who wish to prepare themselves for positions of greater responsibility, or improvement within their present position.

### GENERAL QUALIFICATIONS

Courses in management training may not be taken by full-time students unless they are at least 20 years old or have completed at least 45 credit hours toward graduation.

Students admitted to the curriculum for self-improvement must be presently employed in a supervisory or management position or recommended for training by his present employer as a potential foreman, supervisor, or management position. Other students may be admitted to specific courses for self-improvement by approval of the admissions office.

### EMPLOYMENT

Graduates of the two-year curriculum will have opportunities for employment as management trainees in production control, purchasing, payroll, personnel, inventory control, quality control or as assistant foreman.

## CURRICULUM FOR FULL-TIME EMPLOYEES (Part-time Students)

For the full-time employee (enrolled on a part-time basis) graduation requirements include that the student complete the following courses:

### Required Courses:

<u>Course Number</u>	<u>Name</u>	<u>Credits</u>
6001	Personnel Management for Unit Supervisors	3
6024	Industrial Psychology	3
6030	Economics of Industry	3
6022	Power of Small Group Discussion	2
6048	Managerial Report Writing	<u>3</u>
Total		14

### Electives:

Sixteen additional elective credits will be taken in courses in the management training course sequence

6001 to 6099 . . . . . 16

Total College Credits 30

Part-time students meeting the above requirements will be graduated as Management Technicians.

## SUGGESTED CURRICULUM BY QUARTERS (Full-time Students)

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T2201		Accounting I	3	0	3
T2124		Office Machines	2	2	3
M0317		Business Mathematics	5	0	5
*T		Technical Elective	<u>3</u>	<u>0</u>	<u>3</u>
Totals			16	2	17

\* Indicates selective Trade and Industry courses within a specific skilled area of interest to the student.

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SECOND QUARTER					
G0202	G0201	Communication Skills I	3	0	3
T2202	T2201	Accounting II	3	0	3
T2281		Commercial Law	4	0	4
M0320		Slide Rules and Graphs	2	0	2
G0500		Introduction to General Economics I	<u>4</u>	<u>0</u>	<u>4</u>
Totals			16	0	16
THIRD QUARTER					
M0318		Mathematics of Finance	4	0	4
G0203	G0202	Business Communications	3	0	3
T2201		Introduction to Data Processing	3	0	3
*T		Technical Elective	3	0	3
G0501	G0500	Introduction to General Economics II	<u>4</u>	<u>0</u>	<u>4</u>
Totals			17	0	17
FOURTH QUARTER					
T6001		Personnel Management for Unit Supervisors	3	0	3
T6010		Safety Training and Fire Pre- vention	3	0	3
*T		Technical Elective	3	0	3
T6030		Economics of Industry	3	0	3
T6014		Purchasing Principles and Value Analysis	3	0	3
M6028		Industrial Statistics	<u>3</u>	<u>0</u>	<u>3</u>
Totals			18	0	18
FIFTH QUARTER					
T6004		Manufacturing Organization and Management	3	0	3
T6018		Production Control	3	0	3
T6008		Instructing Employees On-The-Job	2	0	2
T6034		Motion and Time Study	4	0	4
T6035		Job Analysis and Evaluation	3	0	3
T6052		Office Management	<u>3</u>	<u>0</u>	<u>3</u>
Totals			18	0	18

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credit</u>
SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
T6048		Managerial Report Writing	2	0	2
T6036		Manufacturing Costs	3	0	3
T6038		Work Simplification & Measurement	3	0	3
T6032		Manufacturing Cycles	<u>5</u>	<u>0</u>	<u>5</u>
Totals			15	0	15

#### AIRFRAME - POWER PLANT TECHNICIANS

##### DESCRIPTION

The curricula for aeronautic careers are designed to supply the theoretical and practical training needed by the graduate to enter the aviation industry. Three curricula are available:

<u>Name</u>	<u>Length of Curriculum</u>
Airframe and Power Plant Technician	6 Quarters
Airframe Mechanic	3 Quarters
Aviation Power Plant Mechanic	3 Quarters

These curricula are recommended for individuals who have a sincere desire to be associated with the aviation industry.

##### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in aviation. The candidate must be able to profit from such post-high school training. High School courses or the equivalent are recommended in physics or physical science.

##### EMPLOYMENT

Upon graduation, immediate employment will be available in the specific aeronautical area of specialized training. Such positions may be associated with commercial airlines, civil service or private airports who service, repair and maintain industrial and private owned aircraft.



<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T6101		Aircraft Fundamentals	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
T6104		Drawings, Blueprints & Aircraft Hardware Designations	3	0	3
T6108		Federal Aviation Regulations	3	0	3
G0201		Communication Skills	<u>3</u>	<u>0</u>	<u>3</u>
Totals			17	0	17

SECOND QUARTER					
T6106		Aircraft Structures and Theory of Flight	3	0	3
T6120		Powerplant Fundamentals	3	0	3
T6114		Aircraft Mathematics	2	0	2
T6108		Flight Operation Factors	3	0	3
T6112		Structures and Performance	3	0	3
M0450		General Physics	<u>3</u>	<u>2</u>	<u>4</u>
Totals			17	7	18

THIRD QUARTER					
T6110		Practical Flight Engineering Procedures	3	6	4
T6116		Elementary Weight & Balance	3	0	3
T6129		Analysis and Correction of Powerplant Troubles	3	6	4
G0201	G0202	Communication Skills II	3	0	3
T6138		Aircraft Systems	<u>3</u>	<u>6</u>	<u>4</u>
Totals			15	18	18

FOURTH QUARTER					
T6136		Airframe Inspection & Repair	3	6	4
T6124		Aircraft Propellers and Pro- peller Control Systems	3	0	3
T6126		Powerplant Operations	3	0	3
T6154		Engine Line Maintenance and Jet Engine Theory	<u>2</u>	<u>15</u>	<u>7</u>
Totals			11	21	17

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T6152		Engine Overhaul	2	15	7
T6174		Aircraft Metals and Sheet Metal Repair	2	15	7
M		Mathematics Elective	<u>3</u>	<u>0</u>	<u>3</u>
Totals			7	30	17

SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
T6160		Jet Engine Overhaul	2	15	7
T6170		Aircraft Fabric Application and Doping Techniques	<u>2</u>	<u>15</u>	<u>7</u>
Totals			6	30	16

#### AVIATION POWER PLANT MECHANICS

##### DESCRIPTION

This curriculum is a three college quarter program consisting of both actual work experiences and theory on the maintenance and overhaul of aircraft powerplants.

##### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T6101		Aircraft Fundamentals	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
M6104		Drawings, Blueprints & Aircraft Hardward Designations	3	0	3
M6108		Federal Aviation Regulations	3	0	3
G0201		Communication Skills I	<u>3</u>	<u>0</u>	<u>3</u>
Totals			17	0	17

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SECOND QUARTER					
T6120		Powerplant Fundamentals	3	0	3
M6114		Aircraft Mathematics	2	0	2
T6127		Fuel, Fuel Systems and Induction Systems	3	0	3
T6152		Engine Overhaul	<u>2</u>	<u>15</u>	<u>7</u>
Totals			10	15	15

THIRD QUARTER					
G0850		Introduction to the World of Work	2	0	2
T6128		Aircraft Powerplant Electrical Systems	3	6	4
T6129		Analysis and Correction of Powerplant Troubles	3	6	4
T6160		Jet Engine Overhaul	<u>2</u>	<u>15</u>	<u>7</u>
Totals			10	27	17

#### AIRFRAME MECHANICS

#### DESCRIPTION

This curriculum is a three college quarter program which emphasizes maintenance and repair of airframe and fuselage component parts.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T6101		Aircraft Fundamentals	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
M6104		Drawings, Blueprints & Aircraft Hardware Designations	3	0	3
T6108		Federal Aviation Regulations	3	0	3
G0201		Communication Skills I	<u>3</u>	<u>0</u>	<u>3</u>
Totals			17	0	17

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SECOND QUARTER					
T6174		Aircraft Metals and Sheet Metal Repair	2	15	7
T6106		Aircraft Structures and Theory of Flight	3	0	3
M6114		Aircraft Mathematics	2	0	2
M6136		Airframe Inspection & Repair	<u>3</u>	<u>6</u>	<u>4</u>
Totals			10	21	16

### THIRD QUARTER

G0850		Introduction to the World of Work	2	0	2
T6170		Aircraft Fabric Application and Doping Techniques	2	15	7
T6138		Aircraft Systems	3	6	4
T6139		Aircraft Hydraulic Systems	<u>3</u>	<u>6</u>	<u>4</u>
Totals			10	27	17

## AIR CONDITIONING AND REFRIGERATION TECHNICIAN

### DESCRIPTION

This curriculum includes technical subjects and practical experiences designed to develop technical competency required to support research and engineering activities. While the engineer is concerned with design, layout, development, the technician will function as a supporting service in production, testing, sales, installation and service of types of systems for heating, air-conditioning and refrigeration equipment and systems.

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in this technical area. The candidate for training must be able to profit from such post-high school training. High school courses which will permit him to continue his training are such courses as thermo-dynamics, related electrical circuitry, instrumentation, hydraulics, automatic controls, estimating and blueprint reading.

## EMPLOYMENT

Immediate employment will be available in manufacturing plants as assistants in testing, technical sales with equipment dealers and contracting organizations requiring well-trained employment candidates.

### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T6201		Introduction to Air Condi-			
		tioning and Refrigeration	1	0	1
T6203		Principles of Air Condition-			
		ing and Refrigeration Systems	2	6	4
G0201		Communication Skills I	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
T6502		Electricity	<u>4</u>	<u>0</u>	<u>4</u>
		Totals	15	6	17
SECOND QUARTER					
T6531		Industrial Control Circuits	3	3	4
T6205		Air Conditioning-Refrigeration			
		Cycles & Components	2	3	3
M0341		Technical Mathematics I	5	0	5
T6901		Welding for Related Trades	<u>2</u>	<u>9</u>	<u>5</u>
		Totals	12	15	17
THIRD QUARTER					
T6207		Hermetic Refrigeration Systems	2	3	3
T6209		Design and Operation of Commer-			
		cial Refrigeration Systems	3	6	5
T6211		Absorption Systems	2	0	2
M0342	M0341	Technical Mathematics II	5	0	5
M0320		Slide Rules and Graphs	<u>2</u>	<u>0</u>	<u>2</u>
		Totals	14	9	17

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FOURTH QUARTER					
T6401		Blueprint Reading	1	3	2
T6213		Psychometrics of Air-Conditioning Systems	2	0	2
T6215		Commercial Loan Calculations and Equipment Systems	2	3	3
T6221		Air Distribution and Layout	4	3	5
T6405		Technical Drawing I	<u>3</u>	<u>6</u>	<u>5</u>
Totals			12	15	17

#### FIFTH QUARTER

T6217		Advanced Commercial Refrigeration Systems	3	6	5
MO450		General Physics	3	2	4
T6219		Heating and Ventilating	2	2	3
T6223		Air Conditioning Systems	<u>3</u>	<u>3</u>	<u>4</u>
Totals			11	13	16

#### SIXTH QUARTER

G0850		Introduction to the World of Work	2	0	2
G0204	G0201	Report Writing	3	0	3
T6225		Design and Control of Air- Conditioning Systems	2	6	5
T6227		Advanced Air Conditioning Systems Analysis	3	6	5
G0755		Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
		Totals	13	12	18

### GRAPHIC AND COMMERCIAL ART TECHNICIANS

#### DESCRIPTION

These curricula are designed to prepare students for any one of three specialized areas as technicians in Commercial Art, Printing, or Commercial Photography. Each area of specialization emphasizes the experience skills and theory to immediately enter employment upon graduation.

## GENERAL QUALIFICATIONS

Entrance requirements that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in graphics or commercial art. The candidate for training must be able to profit from such post-high school training. High school courses in art, printing or photography will be helpful.

## EMPLOYMENT

Immediate employment will be available as commercial artists, printers or photographers. Diversified employment with such organizations as industry specialize in printing, publishing companies, newspaper publishers or business advertising sections requiring the well-trained employment candidates.

## COMMERCIAL ART TECHNICIAN

### DESCRIPTION

The objective of this curriculum is to prepare men and women for employment as Commercial Artists in many types of businesses. These persons may be employed preparing art designs or illustrations for advertisers, television commercials, cartoons, industrial and advertising film; they may be involved in fashion illustration, packaging design, wallpaper and textile design, display, poster, and direct mail advertising, and window display for retail department stores. Many such artists are self-employed; others work for manufacturers, department stores, advertising agencies, television stations, sign shops, and newspapers.

Prior art training or experience is desirable, but not necessary, as long as the applicant displays evidence of art ability.

Transcripts of previous schooling are required prior to acceptance, and each student will be interviewed by the instructor. Portfolios of art achievement are helpful in evaluating qualifications.

### SUGGESTED CURRICULUM BY QUARTERS

Course Number	Rec. Compl.	Description	Class Hours	Lab. Hours	Credits
FIRST QUARTER					
T6311		Composition & Design	2	6	4
G0201		Communication Skills I	3	0	3
T6310		Art Processes	2	6	4
T6315		Basic Lettering	1	6	3
T6318		Introduction to Illustration	<u>2</u>	<u>6</u>	<u>4</u>
Totals			10	24	18
- 107 -					

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
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#### SECOND QUARTER

G0202	G0201	Communication Skills II	3	0	3
T6316		Creative Lettering	1	6	3
M0300		Fundamentals of Mathematics	5	0	5
T6321		Design Materials & Reproductions	2	3	3
T6323		Illustration Practices	<u>1</u>	<u>9</u>	<u>4</u>
Totals			12	18	18

#### THIRD QUARTER

T6327		Illustration Techniques	2	6	4
G0210		Oral Communication	3	0	3
M0313		Mathematics for Printers I	2	0	2
T6329		Life Drawing	1	6	3
T6331		Figurative Drawing I	<u>1</u>	<u>6</u>	<u>3</u>
Totals			9	18	15

#### FOURTH QUARTER

M6376		Lithographic Chemistry	2	3	3
T6332	T6331	Figurative Drawing II	1	9	4
T6334		Technical Illustration I	2	6	4
T6336		Advertising Psychology	2	3	3
G0230		News Writing	<u>3</u>	<u>0</u>	<u>3</u>
Totals			9	21	17

#### FIFTH QUARTER

T6335	T6334	Technical Illustration II	2	6	4
T6339		Advertising Design	2	6	4
T6340		Advertising Layout	1	6	3
G0755		Human Relations	3	0	3
T6342		Container Design	<u>1</u>	<u>6</u>	<u>3</u>
Totals			9	24	17

#### SIXTH QUARTER

G0850		Introduction to the World of Work	2	0	2
T6336	T6335	Technical Illustration III	1	6	3
T		Technical Elective	4	0	4
T6347		Commercial Reproductions	2	6	4
T6345		Airbrush Drawing	<u>1</u>	<u>6</u>	<u>3</u>
Totals			11	18	16



# COMMERCIAL PHOTOGRAPHY TECHNICIAN

## DESCRIPTION

This curriculum is designed to prepare the student for a career in the photography profession. The purpose of the training is to provide each student with the basic knowledge needed as a foundation for any aspect of a photographic career, rather than specialization for any single objective.

No special aptitudes are required as prerequisites; however, people with a flair of imagination, creative and artistic ability, resourcefulness and a sincere desire to become a photographer, will have the best chance to succeed.

Students are allowed to advance as fast as their skill and knowledge will permit. An instructor is always in attendance for individual instruction in the classroom and in projects designed for practical application of the related classroom work. The training is geared to industry needs, which helps assure a smoother transition from training to employment.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
T6352		Photographic Composition	1	3	2
GO201		Communication Skills I	3	0	3
T6350		Photography Fundamentals	2	3	4
MO300		Fundamentals of Mathematics	5	0	5
T6354		Photographic Lighting	<u>1</u>	<u>3</u>	<u>2</u>
		Totals	12	9	16
SECOND QUARTER					
GO202	GO201	Communication Skills II	3	0	3
T6355		Finishing and Copying	2	9	5
T6356		Color Photography	1	3	2
MO313		Mathematics for Printers I	2	0	2
T6371		Printing Materials	2	3	3
T6315		Basic Lettering	<u>1</u>	<u>6</u>	<u>3</u>
		Totals	11	21	18

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
THIRD QUARTER					
T6316		Creative Lettering	1	6	3
T6357		Advanced Photography	2	6	4
G0210		Oral Communication	3	0	3
G0755		Human Relations	3	0	3
T6345		Airbrush Drawing	<u>1</u>	<u>6</u>	<u>3</u>
Totals			10	18	16
FOURTH QUARTER					
G0230		News Writing	3	0	3
T6358		Photography Workshop	1	9	4
T6378		Lithographic Processes	2	3	3
T6374		Color Theory	2	6	4
T6384		Basic Platemaking	<u>2</u>	<u>3</u>	<u>3</u>
Totals			10	21	17
FIFTH QUARTER					
T6359		Advanced Camera	2	6	4
G0231	G0230	Advanced News Writing and Editing	3	0	3
T6380		Graphic Techniques	2	6	4
T6382		Copy Preparation and Proof- reading	<u>2</u>	<u>6</u>	<u>4</u>
Totals			10	18	16
SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
T6347		Commercial Reproductions	2	6	4
T		Technical Elective	3	0	3
T		Technical Elective	<u>4</u>	<u>0</u>	<u>4</u>
M		Mathematics Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			15	6	17

# GRAPHIC ARTS TECHNICIAN

## DESCRIPTION

This curriculum is designed for those who wish to enter this field and have no previous experience or are now employed in the graphic arts and wish to be more proficient.

Successful completion of the program leads to eventual placement in production positions in advertising agencies and studios, art services, commercial photographic studios, engraving plants, printing and publishing houses, in-plant printing departments, department stores, magazine and periodical offices, organizations and associations.

The training encompasses every aspect of the field from copy preparation to the finished printed piece. The how's and why's are applied to such phases of production as offset stripping, platemaking, photo-mechanics, analysis and proper selection of paper, ink, and methods of reproduction.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T6371		Printing Materials	2	3	3
T6372		Press Operation	2	3	3
M0300		Fundamentals of Mathematics	5	0	5
M6376		Lithographic Chemistry	<u>2</u>	<u>3</u>	<u>3</u>
Totals			14	9	17
SECOND QUARTER					
M0313		Mathematics for Printers I	2	0	2
G0202	G0201	Communication Skills II	3	0	3
T6374		Color Theory	2	6	4
T6378		Lithographic Processes	2	3	3
T6384		Basic Platemaking	<u>2</u>	<u>3</u>	<u>3</u>
Totals			11	12	15
THIRD QUARTER					
M0314	M0313	Mathematics for Printers II	2	0	2
T6386		Commercial Reproductions	1	6	3
G0230		New Writing	3	0	3
T6394		Cutting and Binding	1	6	3
T		Technical Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			11	12	15

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FOURTH QUARTER					
G0231	G0230	Advanced News Writing and Editing	3	0	3
T6388		Production Lithography I	1	6	3
G0755		Human Relations	3	0	3
M		Mathematics Elective	4	0	4
T6008		Instructing Employees On-The-Job	<u>2</u>	<u>0</u>	<u>2</u>
Totals			13	9	15
FIFTH QUARTER					
T6389	T6388	Production Lithography II	1	9	4
T6382		Copy Preparation and Proof- reading	3	6	5
T6380		Graphic Techniques I	2	6	4
T		Technical Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			10	21	17
SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
T6395		Advanced Presswork	1	9	4
T6391		Advanced Lithography	1	9	4
T6001		Personnel Management for Unit Supervisors	3	0	3
T6016		Techniques of Value Analysis	<u>3</u>	<u>0</u>	<u>3</u>
Totals			10	18	16

## DRAFTING AND DESIGN TECHNICIANS

### DESCRIPTION

Program offerings include three curricula for becoming an Architectural, Machine Tool or Product Draftsman. A two-year, six quarter curriculum for each career in drafting and design, the student will upon graduation have full qualifications for entry into this field of employment.

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in drafting and design. The candidate for training must be able to profit from such post-high school training. High School courses in mathematics, physics and drafting, are blueprint reading are helpful.

### EMPLOYMENT

Immediate employment will be available in drafting and design area of concentration upon graduation. Diversified employment is available within such organizations as industry, architects, contractors and building consultants requiring the well-trained employment candidates.

## ARCHITECTURAL DRAFTING TECHNICIAN

### DESCRIPTION

An Architectural Technician assists the architect in the many duties that he performs. Many duties are in the office and may range from drafting or checking to estimating or writing reports and specifications. Some of the duties may take him to the field such as testing and inspection.

A small firm may need assistance to oversee the design and construction of an individual project. A large firm may need assistance in one area such as utilities, finishing, or masonry.

This curriculum provides the background for entry into numerous architectural occupations.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
M0341		Technical Mathematics I	5	0	5
M0455		Physics I	2	3	4
T6403		Drawing Fundamentals	<u>5</u>	<u>9</u>	<u>8</u>
Totals			15	12	20
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0342	M0341	Technical Mathematics II	5	0	5
M0456	M0455	Physics II	2	3	4
T6405		Technical Drawing I	<u>3</u>	<u>6</u>	<u>5</u>
Totals			17	9	21
THIRD QUARTER					
T6420		Architectural Drawing I	4	9	7
T6430		Building Materials	4	0	4
T6436		Structural Analysis	4	0	4
M0343		Technical Mathematics III	<u>5</u>	<u>0</u>	<u>5</u>
Totals			17	9	20
FOURTH QUARTER					
G0204	G0201	Report Writing	3	0	3
T6439		Architectural History	3	0	3
T6421	T6420	Architectural Drawing II	4	9	7
T6432		Architectural Rendering	<u>3</u>	<u>0</u>	<u>3</u>
Totals			13	9	16
FIFTH QUARTER					
G0755		Human Relations	3	0	3
T6422	T6421	Architectural Drawing III	4	9	7
T6429		Building Codes	3	0	3
T6404		Electrical Diagramming	2	6	4
T6444		Surveying and Measurements	<u>3</u>	<u>6</u>	<u>4</u>
Totals			15	21	21

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SIXTH QUARTER					
T6423	T6422	Architectural Drawing IV	4	9	7
T2124		Office Machines	2	2	3
T6437		Contracts and Specifications	3	0	3
T6434		Estimating	3	0	3
G0850		Introduction to the World of Work	<u>2</u>	<u>0</u>	<u>2</u>
Totals			15	11	21

### TOOL DESIGN TECHNICIAN

#### DESCRIPTION

Tool design is included in the specialized fields of mechanical technology. Tool designers start with sketches and layouts of special mechanical devices that are needed in production. Generally these devices might be classified as cutting tools, gauges, dies, jigs, and fixtures. They vary in nature from simple hand tools to complex progressive dies.

They may be required to help determine whether a proposed design change in a product is practical, and how much the product will cost to produce. They may also be called upon to solve design problems, such as those involving tolerances, stress, strain, friction, and vibration. Some technicians may be responsible for testing their devices.

The technician must have ability in drafting and mathematics, along with a thorough knowledge of tool room and production practices. Under many conditions he will be given an idea of a suggestion and his job will be to develop this into a drawing of an efficient, economical tool.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T6403		Drawing Fundamentals	5	9	8
M0341		Technical Mathematics I	5	0	5
M0455		Physics I	<u>2</u>	<u>3</u>	<u>4</u>
Totals			15	12	20

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0350		Descriptive Geometry	4	0	4
M0456	M0455	Physics II	2	3	4
T6405		Technical Drawing I	3	6	5
M0342	M0341	Technical Mathematics II	<u>5</u>	<u>0</u>	<u>5</u>
Totals			17	9	21
THIRD QUARTER					
G0204	G0201	Report Writing	3	0	3
T6460		Machine Processes & Principles	3	6	5
T6406	T6405	Technical Drawing II	3	6	5
M0343	M0342	Technical Mathematics III	<u>5</u>	<u>0</u>	<u>5</u>
Totals			14	12	18
FOURTH QUARTER					
T6462		Statics & Mechanics of Materials	4	0	4
T6486		Jig and Fixture Design	5	9	8
T6468		True Position Dimensioning	2	3	3
T6477		Cam and Gear Design	<u>1</u>	<u>6</u>	<u>3</u>
Totals			12	18	18
FIFTH QUARTER					
T6487		Die Design I	5	9	8
G0755		Human Relations	3	0	3
T6464		Mechanisms	4	0	4
T6466		Strength of Materials	<u>4</u>	<u>0</u>	<u>4</u>
Totals			16	9	19
SIXTH QUARTER					
T2124		Office Machines	2	2	3
T6488	T6487	Die Design II	1	12	5
T6001		Personnel Management for Unit Supervisors	3	0	3
G0850		Introduction to the World of Work	2	0	2
T6470		Basic Electrical Systems	1	0	1
T6472		Metal Fabrication	1	0	1
T6476		Link & Belt Mechanics	1	0	1
T6479		Hydraulics & Pneumatics	<u>2</u>	<u>0</u>	<u>2</u>
Totals			13	14	18



# PRODUCT DRAFTING AND DESIGN TECHNICIAN

## DESCRIPTION

Product drafting and design involves the preparation of clear, complete and accurate working drawings from sketches or notes for engineering or manufacturing purposes. It is the objective of this course of study to train the individual to be accountable for the preparation of design layouts, assemblies, and detailed drawings, establish appropriate dimensioning and tolerancing and assurance that these drawings are prepared within established drafting standards.

Graduates may find employment in industry as draftsmen preparing mechanical, electro-mechanical, casting, forging, sheet metal and welded fabrication drawings to meet design requirements and consumer needs.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
GO201		Communication Skills I	3	0	3
T6403		Drawing Fundamentals	5	9	8
MO455		Physics I	2	3	4
MO341		Technical Mathematics I	<u>5</u>	<u>0</u>	<u>5</u>
Totals			15	12	20

## SECOND QUARTER

GO202	GO201	Communication Skills II	3	0	3
MO350		Descriptive Geometry	4	0	4
MO456	MO455	Physics II	2	3	4
T6405		Technical Drawing I	3	6	5
MO342	MO341	Technical Mathematics II	<u>5</u>	<u>0</u>	<u>5</u>
Totals			17	9	21

## THIRD QUARTER

GO204	GO201	Report Writing	3	0	3
T6460		Machine Processes & Principles	3	6	5
T6406	T6405	Technical Drawing II	3	6	5
MO343	MO342	Technical Mathematics III	<u>5</u>	<u>0</u>	<u>5</u>
Totals			14	12	18

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FOURTH QUARTER					
T6493		Product Drawing	5	9	8
T6462		Statics and Mechanics of Materials	4	0	4
T6468		True Position Dimensioning	2	3	3
T6490		Machine Design Principles	<u>2</u>	<u>0</u>	<u>2</u>
Totals			13	12	17
FIFTH QUARTER					
G0755		Human Relations	3	0	3
T6464		Mechanisms	3	0	3
T6494		Product Design I	1	12	5
T6466		Strength of Materials	4	0	4
T6491		Machine Design I	<u>1</u>	<u>9</u>	<u>4</u>
Totals			12	21	19
SIXTH QUARTER					
T2124		Office Machines	2	2	3
T6001		Personnel Management for			
		Unit Supervisors	3	0	3
T6495	T6496	Product Design II	1	12	5
G0850		Introduction to the World of Work	2	0	2
T6492	T6491	Machine Design II	<u>1</u>	<u>9</u>	<u>4</u>
Totals			9	23	17

## ELECTRONICS AND INSTRUMENTATION TECHNICIAN

### DESCRIPTION

These curricula are designed to prepare the student for entry into the electronics and instrumentation industries as qualified technicians. Employment opportunities in the fields of electronics and instrumentation are rapidly expanding in America.

The student becomes well grounded in the fundamentals of electronic theory, mathematics, and technical communications. As each principle of electronic and instrumentation theory is studied, the most modern laboratory equipment is used to demonstrate and prove the theory. The student performs these experiments under close individual supervision of highly qualified instructors.

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in electronics or instruments. The candidate for training must be able to profit from such post-high school training. High school courses in mathematics, physics and electricity will be helpful for entry into either curriculum.

### EMPLOYMENT

Immediate employment will be available for careers with industry, electric utilities companies, electrical contractors, communications, state and local government.

## ELECTRONICS TECHNICIAN

### DESCRIPTION

This curriculum is organized to provide preparation for entry jobs in a variety of positions in the field of electric power generation and distribution and in the design and manufacture of electrical equipment. In electric light and power companies, the technician may control or assist in the operation of power stations, substations, and transmission lines. In companies manufacturing electrical equipment, the technicians may assist engineers in designing electric motors and generators, appliances and other products. Others may test complex products for conformity with designs and specifications during manufacture, or inspect finished products. Some technicians may become construction or maintenance electricians.

This curriculum is designed to give the student a good foundation in the principles of electrical power distribution and a knowledge of the hardware used in the industry such as motors, transformers, generators, circuit breakers, controls, and lighting equipment used in industrial, commercial and public establishments.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
MO341		Technical Mathematics I	5	0	5
GO201		Communication Skills I	3	0	3
T6502		Electricity	4	6	4
T6404		Electrical Diagramming	2	6	4
T6504		Electronic Assembly Techniques	<u>4</u>	<u>0</u>	<u>4</u>
		Totals	18	12	20
SECOND QUARTER					
MO342	MO341	Technical Mathematics II	5	0	5
GO202	GO201	Communication Skills II	3	0	3
T6506		Electronics I	4	6	4
T2124		Office Machines	<u>2</u>	<u>2</u>	<u>3</u>
		Totals	14	8	15
THIRD QUARTER					
MO343	MO342	Technical Mathematics III	5	0	5
MO450		Physical Science I	3	2	4
T6531		Industrial Control Circuits	3	3	4
T6529		D. C. Machines	<u>4</u>	<u>0</u>	<u>4</u>
		Totals	15	5	17
FOURTH QUARTER					
MO344	MO343	Technical Mathematics IV	5	0	5
T6525		Electric and Magnetic Fields	4	0	4
T6507	T6506	Electronics II	<u>4</u>	<u>9</u>	<u>7</u>
		Totals	13	9	16

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T6030		Economics of Industry	3	0	3
T6527		Transistors	4	9	7
T6560		Automatic Control Systems	3	3	4
T6508	T6507	Electronics III	<u>4</u>	<u>6</u>	<u>4</u>
Totals			14	18	18

#### SIXTH QUARTER

G0755		Human Relations	3	0	3
T6523		Instrumentation	4	9	7
T6533		Integrated & Thin Film Circuits	4	6	4
G0204		Report Writing	3	0	3
G0850		Introduction to the World of Work	<u>2</u>	<u>0</u>	<u>2</u>
Totals			16	15	19

#### INSTRUMENTATION TECHNICIAN

##### DESCRIPTION

An Instrumentation Technician devises, sets up, and operates electronic instrumentation and related apparatus involved in operational and environmental testing of mechanical, structural or electrical equipment. The technician translates the test data for future use by the engineer in making design and evaluation decisions.

Employment opportunities exist in development, production, maintenance, sales, and service in all phases of industrial hydraulics-pneumatics systems.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T0341		Technical Mathematics I	5	0	5
T6501		Introduction to Electronics and Electricity	2	0	2
T6404		Electrical Diagramming	2	6	4
T6506		Electronics I	<u>4</u>	<u>6</u>	<u>4</u>
Totals			16	12	18
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
T0341	T0342	Technical Mathematics II	5	0	5
T6507	T6506	Electronics II	4	9	7
M0455		General Physics I	<u>3</u>	<u>2</u>	<u>4</u>
Totals			15	11	19
THIRD QUARTER					
M0343	M0342	Technical Mathematics III	5	0	5
T6570		Measurement Principles (Mechanical)	1	6	3
T6508	T6507	Electronics III	4	6	4
T6568		Instruments & Measurements	3	3	4
M0456	M0455	General Physics II	<u>3</u>	<u>2</u>	<u>4</u>
Totals			16	17	20
FOURTH QUARTER					
T6571		Measurement Principles (Electrical)	2	3	3
T6566		Pneumatic Transmitters and Receivers	3	3	4
T6523		Instrumentation	4	9	7
M0431		General Chemistry	<u>3</u>	<u>2</u>	<u>4</u>
Totals			12	17	18

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T6560		Automatic Control Systems	3	3	4
T6562		Calibrations and Standardization	3	3	4
T6554		Electronic Instrumentation	3	6	5
G0204	G0201	Report Writing	3	0	3
T6564		Analytic Instruments	<u>2</u>	<u>3</u>	<u>3</u>
Totals			14	15	19

SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T6573		Instrumentation in Industry	3	0	3
T6540		Trouble Shooting Techniques	2	3	3
T6575		Control Systems & Telemetry	3	3	4
T6556		Aerospace Instrumentation	<u>2</u>	<u>0</u>	<u>2</u>
Totals			15	6	17

#### COMMUNICATIONS SERVICE TECHNICIAN

##### DESCRIPTION

The content of this curriculum includes technical mathematics, basic electronics, radio servicing techniques, television theory and servicing techniques, color television servicing techniques, transistor theory, transmitting equipment techniques, and the study and use of test equipment. The student will also receive instruction in the antenna theory and installation. This curriculum is open to those students who can demonstrate a desire to become a radio and television service personnel.

Graduates of this program will be qualified to service all types of receiving equipment. This includes radios, televisions (both black and white and color), amplifiers, turn tables, hi-fi equipment, stereo equipment, intercom systems, and the installation of antenna systems. These graduates will also be qualified to find employment in industries as trouble-shooters.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
M0341		Technical Mathematics I	5	0	5
T6502		Electricity	4	6	4
T6504		Electronic Assembly Techniques	4	0	4
T6501		Introduction to Electricity and Electronics	<u>2</u>	<u>0</u>	<u>2</u>
Totals			18	6	18
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0342	M0341	Technical Mathematics II	5	0	5
T6506		Electronics I	4	6	4
T6404		Electrical Diagramming	<u>2</u>	<u>6</u>	<u>4</u>
Totals			14	12	16
THIRD QUARTER					
M0343	M0342	Technical Mathematics III	5	0	5
T6507	T6506	Electronics II	4	9	7
T6540		Trouble Shooting Techniques I	2	3	3
T6542		Electronic Shop Processes I	<u>1</u>	<u>3</u>	<u>2</u>
Totals			12	15	17
FOURTH QUARTER					
G0204	G0201	Report Writing	3	0	3
T6508	T6507	Electronics III	4	6	4
T6541	T6540	Trouble Shooting Techniques II	3	3	4
T6543	T6542	Electronic Shop Processes II	1	6	3
T6525		Electric and Magnetic Fields	<u>4</u>	<u>0</u>	<u>4</u>
Totals			15	15	18



<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T6509	T6508	Electronics IV	4	6	4
T6544	T6543	Electronic Shop Processes III	2	3	3
T6550		Applied Theory and Principles of Electronic Communication	3	9	6
T6527		Transistors	<u>4</u>	<u>9</u>	<u>7</u>
Totals			13	27	20
SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T6510	T6509	Electronics V	4	6	4
T6533		Integrated and Thin Film Circuits	4	6	4
T6575		Control Principles and Telemetry	<u>3</u>	<u>3</u>	<u>4</u>
Totals			16	15	17

## DIESEL AND AUTOMOTIVE TECHNICIANS

### DESCRIPTION

Five curricula offerings are available within this program:

Automotive Technician	6 quarters
Automotive Mechanic	3 quarters
Automotive Body Repairman	3 quarters
Diesel Technician	6 quarters
Diesel Mechanic	3 quarters

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in diesel or automotive servicing. The candidate for training must be able to profit from such post-high school training. High school courses in mechanics, mechanical drawing, shop mathematics and blueprint reading will be helpful.

### EMPLOYMENT

Immediate employment will be available in any one of the offered career curricula. Diversified employment with such organizations as garages, automotive manufacturing diesels and automotive parts requiring the well-trained employment candidates.

## AUTOMOTIVE TECHNICIAN

### DESCRIPTION

This curriculum is intended to give thorough preparation for entering the automotive service field. It includes a study of all types of current internal combustion engines, and other vehicle equipment.

The student is given a thorough preparation in every aspect of automotive maintenance and repair, including the more specialized fields such as wheel alignment and balance, carburetion, ignition, tune-up procedures, brakes and front suspension.

The ever-increasing vehicle population and the constant improvements in modern cars and trucks require that automotive technicians or mechanics have the type of training which can be secured best in a well-equipped school. Both theoretical and practical training are given in all phases of automotive service and in the use of modern service tools and equipment.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T6601		Automotive and Diesel Safety Practices	2	3	3
M0300		Fundamentals of Mathematics	5	0	5
T6607		Automotive Engines	<u>1</u>	<u>12</u>	<u>5</u>
Totals			11	15	16
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0301		Mathematics for Auto Mechanics I	2	0	2
T6603		Automotive Drawing and Interpretation	2	3	3
T6605		Tune Up and Carburetion	1	9	6
T6630		Auto Body Repair Estimating	<u>2</u>	<u>6</u>	<u>4</u>
Totals			10	18	18
THIRD QUARTER					
M0302	M0301	Mathematics for Auto Mechanics II	2	0	2
T6609		Brakes and Steering	2	6	4
T6611		Balancing and Alignment	2	6	3
T6632		Auto Body I	1	9	4
T6660		Cost Estimating	<u>2</u>	<u>3</u>	<u>3</u>
Totals			9	24	16
FOURTH QUARTER					
M0317		Business Mathematics	5	0	5
T6617		Electrical Systems	2	6	4
T6613		Clutches and Transmissions	2	9	5
T6615		Differentials and Drivelines	<u>2</u>	<u>9</u>	<u>5</u>
Totals			11	24	19

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
G0204	GC201	Report Writing	3	0	3
T6662		Automotive and Diesel Service Management	3	3	4
T6664		Parts Department Practices	2	6	4
T6633	T6632	Auto Body II	<u>1</u>	<u>9</u>	<u>4</u>
Totals			9	18	15

SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T6634	T6633	Auto Body III	2	6	4
T6901		Welding for Related Trades	2	9	5
T6650		Introduction to Diesel Service	<u>3</u>	<u>3</u>	<u>4</u>
Totals			12	18	18

#### AUTOMOTIVE MECHANICS

##### DESCRIPTION

The program is geared to the needs of the automotive industry, and includes instruction in the use of up-to-date equipment and modern methods. The areas of instruction include: fundamentals of automotive electricity, which are applied to the theory and operation of automotive charging and starting circuits, ignition systems, etc. The auto mechanic trainee will become familiar with the basic components of the automobile. Shop work on general service jobs is closely controlled to give the student a variety of learning experiences.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
T6601		Automotive and Diesel Safety Practices	2	3	3
T6607		Automotive Engines	<u>1</u>	<u>12</u>	<u>5</u>
Totals			11	15	16

SECOND QUARTER					
M0301		Mathematics for Auto Mechanics I	2	0	2
T6603		Automotive Drawing and Interpretation	2	3	3
T6605		Tune-Up and Carburetion	1	9	6
T6609		Brakes and Steering	2	6	3
T6611		Balancing and Alignment	<u>2</u>	<u>6</u>	<u>3</u>
Totals			9	24	17

THIRD QUARTER					
G0850		Introduction to the World of Work	2	0	2
M0302	M0301	Mathematics for Auto Mechanics II	2	0	2
T6617		Electrical Systems	2	6	4
T6613		Clutches and Transmissions	2	9	5
T6615		Differentials and Drivelines	<u>2</u>	<u>9</u>	<u>5</u>
Totals			10	24	18

## AUTOMOBILE BODY REPAIRMAN

### DESCRIPTION

This curriculum is designed to give the student a thorough knowledge of auto body repairing and refinishing.. This will consist of welding, straightening, panel installation, trim and glass work, refinishing, and estimating. The student will obtain the knowledge needed in a modern, progressive body shop.

A student who successfully completes the program will be qualified to enter the field as a junior grade used car reconditioner, body repairman, or refinisher. He will be qualified to set-up and maintain his own business after experience is obtained in a body repair shop.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
T6601		Automotive and Diesel Safety Practices	2	3	3
T6632		Auto Body I	<u>1</u>	<u>9</u>	<u>4</u>
Totals			11	12	15
SECOND QUARTER					
T6633	T6632	Auto Body II	1	9	4
M0301		Mathematics for Auto Mechanics I	2	0	2
T6640		Related Auto Body I	2	6	4
T6901		Welding for Related Trades	2	9	5
T6642		Related Auto Body II	<u>2</u>	<u>6</u>	<u>4</u>
Totals			9	30	19
THIRD QUARTER					
G0850		Introduction to the World of Work	2	0	2
T6634	T6633	Auto Body III	1	9	4
M0302	M0301	Mathematics for Auto Mechanics II	2	0	2
T6641		Related Auto Body III	2	6	4
T6643		Related Auto IV	<u>2</u>	<u>6</u>	<u>4</u>
Totals			9	21	16

# DIESEL TECHNICIAN

## DESCRIPTION

Because of its economy of operation and comparatively low maintenance costs, the application of diesel power to both stationary and mobile installations has made great progress. An increased demand for diesel technicians with a varied background of technical information and with skills in testing, servicing, and maintaining this type of equipment has thus been created.

The Diesel Technician's program has as its basic objectives the training of technicians who will have the technical knowledge and basic skills required by current industrial needs. The instruction includes the fundamental construction and operating principles of the diesel engine, together with sufficient application to provide a broad foundation in the field. It is directed toward meeting the needs for highly skilled technicians in the servicing, development, and testing of diesel engines.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T6601		Automotive and Diesel Safety Practices	2	3	3
M0300		Fundamentals of Mathematics	5	0	5
T6650		Introduction to Diesel Servicing	<u>3</u>	<u>3</u>	<u>4</u>
Totals			13	6	15
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0304		Mathematics for Diesels I	2	0	2
T6652		Diesel I	2	6	4
T6901		Welding for Related Trades	2	9	5
T6603		Automotive Drawing and Interpretation	<u>2</u>	<u>3</u>	<u>3</u>
Totals			11	18	17

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
THIRD QUARTER					
MO305	MO304	Mathematics for Diesels II	2	0	2
T6653	T6652	Diesel II	1	9	4
T6664		Parts Department Management	2	6	4
T6613		Clutches and Transmissions	<u>2</u>	<u>9</u>	<u>5</u>

Totals	7	21	15
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#### FOURTH QUARTER

G0204	G0201	Report Writing	3	0	3
T6654	T6653	Diesel III	1	12	5
MO317		Business Mathematics	5	0	5
T6619		Differentials and Drivelines	<u>2</u>	<u>9</u>	<u>5</u>
Totals			11	21	18

#### FIFTH QUARTER

T6655	T6654	Diesel IV	1	12	5
T6617		Electrical Systems	2	6	4
T6609		Brakes and Steering	2	6	4
T		Technical Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			9	24	17

#### SIXTH QUARTER

G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T6662		Automotive and Diesel Service Management	3	3	4
T6660		Cost Estimating	2	3	3
G		General Education Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			14	6	16

#### DIESEL MECHANICS

##### DESCRIPTION

This curriculum stresses the importance of preventive maintenance as applied to diesel engines and fleet operation. The use of electrical test equipment operating at peak efficiency is incorporated in the training



program. The student will have an opportunity to operate equipment available and perform preventive maintenance services as scheduled.

Students study and work on diesel engines in the laboratory. Ratings and engine performance are stressed, as are the construction and operating features. Rebuilding and trouble shooting is also covered.

The diesel fuel, cooling and lubricating systems are studied. Students are taught to rebuild pumps, calibrate injectors and nozzles. The various injectors are disassembled and tested on special equipment designed for this purpose.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T6652		Diesel I	2	6	4
M0300		Fundamentals of Mathematics	5	0	5
T6650		Introduction to Diesel Service	<u>3</u>	<u>3</u>	<u>4</u>
Totals			13	9	16
SECOND QUARTER					
T6653		Diesel II	1	9	4
T6654		Diesel III	1	12	5
M0304		Mathematics for Diesels I	2	0	2
T6901		Welding for Related Trades	<u>2</u>	<u>9</u>	<u>5</u>
Totals			6	30	16
THIRD QUARTER					
G0850		Introduction to the World of Work	2	0	2
M0305	M0304	Mathematics for Diesels II	2	0	2
T6655		Diesel IV	1	12	5
T6615		Differentials and Drivelines	2	9	5
T6609		Brakes and Steering	<u>2</u>	<u>6</u>	<u>4</u>
Totals			8	27	18

## CHEMICAL AND METALLURGICAL TECHNICIANS

### DESCRIPTION

Two curricula are offered by the College. The chemical curriculum places emphasis on general, organic and analytical chemistry with laboratory work designed to develop skill and techniques for processing commercial chemical materials.

The curriculum for metallurgical training emphasizes a metal testing in mechanical laboratories for making hardness, metal x-ray, tensile and fatigue tests.

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in chemistry. The candidate for training must be able to profit from such post-high school training. High school courses in chemistry, physics and mathematics will be helpful.

### EMPLOYMENT

Immediate employment will be available in laboratories of industrial departments for heat treating, electro plating, powder-metal products, lubricants, plastics, glass and paper.

## CHEMICAL TECHNICIAN

### DESCRIPTION

This curriculum includes the study of the fundamentals of general, organic, and analytical chemistry with laboratory work designed to develop skill, technique, and manual dexterity in performing qualitative and quantitative analysis. Emphasis is placed on the study of individual chemicals, their properties and reactions, and on the methods of production and analysis of these chemicals. Special emphasis is placed on instrumental analysis of commercial chemical materials.

The theoretical instruction and laboratory practice will prepare individuals for employment in a wide variety of chemical operations. Chemical Technicians support chemists and engineers in such fields as goods, metals, glass, plastics, petroleum, rubber, paper, lubricants, industrial chemicals, agriculture and textiles. Positions are also available in research and academic institutions in support of scientists developing new and better products.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T6730		Introduction to the Chemical Industry	1	0	1
M0341		Technical Mathematics I	5	0	5
M0431		General Chemistry I	3	2	4
T6752		Chemical Calculations	<u>3</u>	<u>0</u>	<u>3</u>
Totals			15	2	16
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0342	M0341	Technical Mathematics II	5	0	5
M0432	M0431	General Chemistry II	3	2	4
T6754		Chemical Analysis I	<u>3</u>	<u>6</u>	<u>5</u>
Totals			14	8	17
THIRD QUARTER					
M0343	M0342	Technical Mathematics III	5	0	5
M0434	M0432	Organic Chemistry	3	2	4
T6755	T6754	Chemical Analysis II	3	9	6
T6759		Use of Measurement	<u>3</u>	<u>0</u>	<u>3</u>
Totals			14	11	18
FOURTH QUARTER					
G0204	G0201	Report Writing	3	0	3
T6756	T6755	Chemical Analysis III	3	9	6
M0455		General Physics I	3	2	4
T6766		Introduction to Physical Chemistry	<u>4</u>	<u>3</u>	<u>5</u>
Totals			13	14	18

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T6757	T6756	Chemical Analysis IV	3	6	5
T6761		Mathematics for Process Improvements	3	0	3
T6763		Unit Operations I	4	3	5
T6705		Chemical Processes for Metallurgy	<u>4</u>	<u>0</u>	<u>4</u>
Totals			14	9	17

#### SIXTH QUARTER

G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T6764	T6763	Unit Operations II	4	3	5
T		Technical Elective	4	0	4
G		General Education Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			17	3	18

#### METALLURGICAL TECHNICIAN

##### DESCRIPTION

The Metallurgical curriculum is designed to prepare persons in both skills and theory to work in the metal testing laboratories or to assist in metal research and development projects. The specialized courses in this program involve procedures in mechanical testing, such as hardness, tensile, fatigue and others; micro-preparation of metal specimens including photographing the microstructure; practice in metal processing techniques, such as heat treatment of steel, gas and arc welding, and some foundry processes; and practice in making routine chemical analysis of common elements in steel.

The emphasis in these specialized courses is placed on adaptive metallurgy rather than extractive or chemical.

Excellent job opportunities are available to graduates in various departments of industries: engineering divisions, heat treat departments, steel mill laboratories and inspection areas, electro-plating, powder-metal products, foundry laboratories and supervision.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T6701		Introduction to Metallurgy	2	6	3
M0341		Technical Mathematics I	5	0	5
M0431		General Chemistry I	3	2	4
T6903		Materials Testing	<u>2</u>	<u>6</u>	<u>3</u>
Totals			15	14	18
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0342	M0341	Technical Mathematics II	5	0	5
M0455		General Physics I	3	2	4
T6707		Instrument Analysis	2	3	3
T6401		Blueprint Reading	<u>1</u>	<u>3</u>	<u>2</u>
Totals			14	8	17
THIRD QUARTER					
M0343	M0342	Technical Mathematics III	5	0	5
M0450		Physical Science I	3	2	4
T6705		Chemical Processes for Metallurgy	4	0	4
T6709		Principles of Metallurgy	<u>3</u>	<u>6</u>	<u>5</u>
Totals			15	8	18
FOURTH QUARTER					
T6711		Heat Treatment of Metals	2	6	4
T6763		Advanced Metallography	2	6	4
G0204	G0201	Report Writing	3	0	3
T		Technical Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			11	12	15

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T6715		Advanced Heat Treatment	2	6	4
T6717		Industrial X-Ray	2	6	4
T6865		Industrial Hydraulics	1	9	4
T6905		Standards and Specifications	2	3	3
T6020		Quality Control and Zero Defects	<u>3</u>	<u>0</u>	<u>3</u>
Totals			10	24	18
SIXTH QUARTER					
T6719		Technical Methods of Analysis	3	6	5
G0850		Introduction to the World of Work	2	0	2
T6026		Human Relations in Industry	3	0	3
T6950		Principles of Automatic, Spot and Resistance Welding	2	3	3
G		General Education Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			14	9	17

## TOOL, MACHINE AND MAINTENANCE TECHNICIANS

### DESCRIPTION

Oriented toward the vast industrial complex, this training program is designed toward career opportunities as tool makers, production machinist, machine set-up men, machine maintenance, and industrial mechanics. The student progresses from the study of elementary hand and machine tool principles through the more complex technical and manipulative skills of machine operation or repair. Environmental conditions of industry are maintained as near as possible in training situations to assure that the skills taught are those which will provide the employer with immediate productivity at the time of employment.

The following four suggested curricula are available:

Tool Room Technician	6 quarters
Production Machinist	3 quarters
Machine Repair Technician	6 quarters
Machine Repairman	3 quarters

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in industrial machine shop or machine repair. The candidate for training must be able to profit from such post-high school training. High school courses in general mathematics, electricity, blueprint reading and mechanical drawing.

### EMPLOYMENT

Immediate employment will be available as entry positions of machinist, production machine operator, maintenance helpers with an opportunity to advance to the better and higher skilled positions and experience on the job.

### TOOL ROOM TECHNICIAN

#### DESCRIPTION

The curriculum objectives are to provide the fundamental, general, machine trades instruction for entrance into apprentice training and to provide specialized instruction for the purpose of training machine operators.

There are many kinds of machinists. There are machine operators who specialize in one machine. Then there are general machinists who can operate many machines and set them up for long or short runs.

Because they work with high speed machine tools and sharp cutting instruments, workers in these occupations need good safety habits.

The students will become acquainted with the common hand tools and machine tools of the machine trades area. The instructional plan calls for approximately 1/3 related instruction and 2/3 laboratory experiences.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T6401		Blueprint Reading	1	3	2
M0300		Fundamentals of Mathematics	5	0	5
T6801		Introduction to Machine Shop	2	3	3
T6810		Drill Presses	<u>1</u>	<u>3</u>	<u>2</u>
Totals			12	9	15
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0310		Mathematics for Machinists I	3	0	3
T6803		Power Sawing	2	6	4
T6815		Milling Machine I	1	6	3
T6811		Shaper I	<u>1</u>	<u>6</u>	<u>3</u>
Totals			10	18	16
THIRD QUARTER					
M0311	M0310	Mathematics for Machinists II	3	0	3
T6807		Tool and Part Inspection	2	6	4
T6812	T6811	Shaper II	1	6	3
T6816	T6815	Milling Machine II	1	6	3
T6820		Engine Lathe I	<u>1</u>	<u>9</u>	<u>4</u>
Totals			8	27	17



<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FOURTH QUARTER					
G0204	G0201	Report Writing	3	0	3
T6817	T6816	Milling Machine III	1	6	3
T6821	T6820	Engine Lathe II	1	9	4
T6711		Heat Treatment of Metals	2	6	4
T6830		Advanced Grinding	<u>1</u>	<u>6</u>	<u>3</u>
Totals			8	27	17

FIFTH QUARTER					
T6818	T6817	Milling Machine IV	1	9	4
T6822	T6821	Engine Lathe III	1	9	4
T6831		Grinding (Cyl.)	1	9	4
T6805		Layout and Inspection	<u>2</u>	<u>6</u>	<u>4</u>
Totals			5	33	16

SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
T6001		Personnel Management for Unit Supervisors	3	0	3
T6840		Machine Processes	2	9	5
T6842		Advanced Machine Operation	2	9	5
T6026		Human Relations for Industry	<u>3</u>	<u>0</u>	<u>3</u>
Totals			12	18	18

#### PRODUCTION MACHINIST

##### DESCRIPTION

The variety of types of employment one may seek in the machine tool industry indicates that there will be a substantial increase in the total number of positions available to machinists; however, the development of faster and more versatile automatic machine tools will limit the expansion of employment opportunities in some types of occupations traditionally open to machinists.

Persons commencing training should be mechanically inclined and temperamentally suited to do highly accurate work that requires concentration as well as physical effort.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
T6801		Introduction to Machine Shop	2	3	3
T6810		Drill Presses	1	3	2
T6803		Power Sawing	<u>2</u>	<u>6</u>	<u>4</u>
Totals			13	12	17

SECOND QUARTER					
M0310		Mathematics for Machinists I	3	0	3
T6401		Blueprint Reading	1	3	2
T6815		Milling Machine I	1	6	3
T6811		Shaper I	1	6	3
T6820		Engine Lathe I	<u>1</u>	<u>9</u>	<u>4</u>
Totals			7	24	15

THIRD QUARTER					
G0850		Introduction to the World of Work	2	0	2
M0311	M0310	Mathematics for Machinists II	3	0	3
T6816	T6815	Milling Machine II	1	6	3
T6812	T6811	Shaper II	1	6	3
T6821	T6820	Engline Lathe II	1	9	4
G0755		Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
Totals			11	21	18

With concurrence of the student's faculty advisor, the pupil may alter his course selection for machining in the event he desires to specialize in a specific machine operation.

## MACHINE REPAIR TECHNICIAN

### DESCRIPTION

The Machine Repair Technician curriculum is designed primarily for the student who wishes to become a liaison employee between the Plant Engineer and the shop superintendent or maintenance foreman.

In this course the student must be qualified to handle all of the mathematics involved, and to write necessary technical reports, including the scheduling of repair jobs, sequence of operations, etc. This course includes enough basic machine repair to acquaint the student with the various machines and their operation.

The course is composed of academic subjects including mathematics, English, science, economics, the remainder being in lab or shop, including machine repair, blueprint reading, and theory.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
T6850		Introduction to Machine Repair	3	6	5
T6401		Blueprint Reading	<u>1</u>	<u>3</u>	<u>2</u>
Totals			12	9	15
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0315		Mathematics for Electricians	3	0	3
T6852		Machine Repair I	1	9	4
T6860		Diagnosing and Repair I	1	9	4
T6865		Industrial Hydraulics	<u>1</u>	<u>9</u>	<u>4</u>
Totals			9	27	18
THIRD QUARTER					
T6853		Machine Repair II	1	9	4
T6901		Welding for Related Trades	2	9	5
T6502		Electricity	4	6	4
G0204	G0201	Report Writing	<u>3</u>	<u>0</u>	<u>3</u>
Totals			10	24	16

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FOURTH QUARTER					
T6861	T6860	Diagnosing and Repair II	1	9	4
T6870		Pattern Development Layout I	2	9	5
T6872		General Sheet Metal I	2	0	2
T6880		Basic Electro-plating and Metal Finishing	<u>2</u>	<u>0</u>	<u>2</u>

Totals		7	27	16
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#### FIFTH QUARTER

T6891	T6890	Pattern Development Layout II	2	9	5
T6873	G6872	General Sheet Metal II	2	9	5
T6010		Safety Training and Fire Pre- vention	3	0	3
T6044		Basic Numerical Control	<u>3</u>	<u>0</u>	<u>3</u>
Totals			10	18	16

#### SIXTH QUARTER

G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T6531		Industrial Control Circuits	3	3	4
T6205		Principles of Air-Conditioning and Refrigeration Systems	2	6	4
T6219		Heating and Ventilation	<u>2</u>	<u>2</u>	<u>3</u>
Totals			12	11	16

#### MACHINE REPAIRMAN

##### DESCRIPTION

The curriculum objective is to provide the student with a background in the subjects of machine repair, and then a chance to apply these skills.

The great variety of equipment and machinery used throughout American industry is kept in good operating condition by industrial machine repairmen--often called maintenance mechanics. When breakdowns occur, repairmen determine the cause of the trouble and make the necessary repairs. They may completely or partly disassemble a machine in order to repair or replace defective parts. After the machine is reassembled, they make the necessary mechanical adjustments to insure its proper operation.

Much of a repairman's time is spent in preventive maintenance. By regularly inspecting the equipment, oiling and greasing machines, and cleaning and repairing parts, he prevents trouble which could cause breakdowns later. He also may keep maintenance records of the equipment he services.

Mechanical aptitude and manual dexterity are important qualifications for workers in this trade.

#### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
T6850		Introduction to Machine Repair	3	6	5
T6401		Blueprint Reading	1	3	2
T6010		Safety and Fire Prevention	<u>3</u>	<u>0</u>	<u>3</u>
Totals			15	9	18
SECOND QUARTER					
M0315		Mathematics for Electricians	3	0	3
T6852		Machine Repair I	1	9	4
T6860		Diagnosis and Repair I	1	9	4
T6502		Electricity	<u>2</u>	<u>6</u>	<u>4</u>
Totals			7	24	15
THIRD QUARTER					
G0850		Introduction to the World of of Work	2	0	2
T6853	T6852	Machine Repair II	1	9	4
T6861	T6860	Diagnosis and Repair II	1	9	4
G0755		Human Relations	3	0	3
T6865		Industrial Hydraulics	<u>1</u>	<u>9</u>	<u>4</u>
Totals			8	27	17

## WELDING TECHNICIANS

### DESCRIPTION

New welding processes are rapidly being developed and their applications are wide and varied. The welding industry has become one of the principle means of fabrication of many items. It is almost impossible to name an industry that does not employ some type of welding.

These curricula for welding are designed to teach individuals the basic fundamentals and theory of arc, acetylene, tungsten inert, and metallic inert gas welding. Besides learning the basic fundamentals of each type welding, considerable time is spent teaching skills of all positions of welding.

Upon completion of training, the graduate should be able to obtain, hold a job, and advance in many areas of the welding trade, provided he has developed his skills to include an understanding of blueprint reading, related mathematics, and the basics of metallurgy.

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in welding. The candidate for training must be able to profit from such post-high school training. High school courses in blueprint reading, mechanical drawing and mathematics will be helpful.

### EMPLOYMENT

Skilled welders who have the required qualifications may be promoted to jobs as inspectors, foremen, supervisors or superintendents. Unlimited opportunities for advancement exist for those who are thoroughly acquainted with and keep abreast with current techniques, materials, designs and new applications of the welding processes.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
MO300		Fundamentals of Mathematics	5	0	5
T6910		Welding I	1	9	4
T6905		Standards and Specifications	2	3	3
T6401		Blueprint Reading	<u>1</u>	<u>3</u>	<u>2</u>
Totals			12	14	17
SECOND QUARTER					
T6920		Arc Welding I	1	9	4
G0202	G0201	Communication Skills II	3	0	3
MO308		Mathematics for Welders I	2	0	2
T6911	T6910	Welding II	1	9	4
T6701		Introduction to Metallurgy	<u>2</u>	<u>6</u>	<u>3</u>
Totals			9	24	16
THIRD QUARTER					
MO309	MO308	Mathematics for Welders II	2	0	2
T6912	T6911	Welding III	1	9	4
T6931		Oxy-Acetylene Welding I	1	9	4
G		General Education Elective	4	0	4
T6921	T6920	Arc Welding II	<u>1</u>	<u>9</u>	<u>4</u>
Totals			9	27	18
FOURTH QUARTER					
G0204	G0201	Report Writing	3	0	3
T6932	T6931	Oxy-Acetylene Welding II	1	9	4
T6922	T6921	Arc Welding III	1	9	4
T6711		Heat Treatment of Metals	<u>2</u>	<u>6</u>	<u>4</u>
Totals			7	24	15

# GENERAL WELDER

## DESCRIPTION

The objective of this curriculum is to prepare the student for entry into welding occupations. This program will give the student enough practice with industrial projects that he should be highly competent upon successful completion of the program. The projects the student has assigned will begin with the simple and in orderly fashion progress to the complex. A three-quarter curriculum, the student may specialize in one specialized area of welding during the third quarter.

## SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
M0308		Mathematics for Welders I	2	0	2
T6910		Welding I	1	9	4
T6920		Arc Welding I	1	9	4
T6905		Standards and Specifications	<u>2</u>	<u>3</u>	<u>3</u>
Totals			8	21	16
SECOND QUARTER					
M0309	M0308	Mathematics for Welders II	2	0	2
T6911	T6910	Welding II	1	9	4
T6931		Oxy-Acetylene Welding I	1	9	4
T6921	T6920	Arc Welding II	1	9	4
G0755		Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
Totals			8	27	17
THIRD QUARTER					
G0850		Introduction to the World of Work	2	0	2
T6942		Welding Trouble Shooting Techniques	1	9	4
T		Welding Elective	1	9	4
T		Welding Elective	1	9	4
T6944		Seminar	<u>2</u>	<u>6</u>	<u>4</u>
Totals			7	33	18



## BUILDING AND GROUNDS TECHNICIANS

### DESCRIPTION

The Buildings and Grounds Technicians program is designed to provide experiences on a wide variety of work encountered by the building maintenance mechanic so that graduates will be prepared to accept employment and adapt effectively to any task involved in the maintenance of commercial or industrial type buildings. Emphasis is placed on repair, remodeling, and preventive maintenance rather than custodial work. Typical experiences will include: painting, ceiling installation, floor tile work, equipment assembly and installation, furniture refinishing, landscape planting, etc.

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in building and grounds maintenance. The candidate for training must be able to profit from such post-high school training.

### EMPLOYMENT

The student will have many avenues of employment open other than building maintenance, such as ceiling installation, or floor mechanic, and will have the opportunity to specialize in the later stages of training.

There is presently a substantial demand for this type of worker, especially in the metropolitan centers, and long range security is reasonably assured. If the person is able to relocate or commute to a metropolitan center, rapid employment is assured.

### SUGGESTED CURRICULUM BY QUARTERS

<u>Course</u> <u>Number</u>	<u>Rec.</u> <u>Compl.</u>	<u>Description</u>	<u>Class</u> <u>Hours</u>	<u>Lab.</u> <u>Hours</u>	<u>Credits</u>
FIRST QUARTER					
GO201		Communication Skills I	3	0	3
T7001		Custodial Materials & Equipment	1	6	3
MO300		Fundamentals of Mathematics	5	0	5
T7030		Lawn & Plant Care	1	6	3
T7005		Floor Care and Treatment	<u>1</u>	<u>6</u>	<u>3</u>
Totals			11	18	17

Course Number	Rec. Compl.	Description	Class Hours	Lab. Hours	Credits
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
M0401		Biology I	3	2	4
T6010		Safety & Fire Prevention	3	0	3
T7007		Wall & Ceiling Refinishing	1	6	3
T7009		Institutional Sanitation	<u>1</u>	<u>6</u>	<u>3</u>
Totals			11	18	17
THIRD QUARTER					
T7011		Furniture Repair & Refinishing	1	9	4
T7019		Electrical & Mechanical Systems Maintenance	2	6	4
T7013		Hospital Housekeeping	2	6	4
T7032		Tree Surgery and Trimming	<u>1</u>	<u>6</u>	<u>3</u>
Totals			6	27	15
FOURTH QUARTER					
G0204	G0201	Report Writing	3	0	3
T7015		Hospital Equipment Maintenance and Repair	2	6	4
T7034		Soil Preparation, Seeding & Planting	1	6	3
T7050		Work Planning and Scheduling	2	3	3
T6620		Small Engine Repair	<u>2</u>	<u>6</u>	<u>4</u>
Totals			10	21	17
FIFTH QUARTER					
T6622		Small Machine Repair	2	6	4
T7040		Concrete, Asphalt & Masonry	1	6	3
T7017		Remodeling & Alterations	1	6	4
M		Mathematics or Science Elective	<u>4</u>	<u>-</u>	<u>4</u>
Totals			8	18	15
SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T7036		Trees, Plants & Grasses	1	6	3
T6001		Personnel Management for Unit Supervisors	3	0	3
T		Technical Elective	<u>4</u>	<u>0</u>	<u>4</u>
Totals			<u>13</u>	<u>6</u>	<u>15</u>

# BUILDING CUSTODIAN

## (A Three-Quarter Curriculum)

### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T7001		Custodial Materials and Equipment	1	6	3
M0300		Fundamentals of Mathematics	5	0	5
T7005		Floor Care and Treatment	1	6	3
T7009		Institutional Sanitation	<u>1</u>	<u>6</u>	<u>3</u>
Totals			11	18	17
SECOND QUARTER					
T7007		Wall and Ceiling Refinishing	1	6	3
T6010		Safety and Fire Prevention	3	0	3
T7011		Furniture Repair and Refinishing	1	9	4
T7019		Electrical and Mechanical Systems Maintenance	2	6	4
T7013		Hospital Housekeeping	<u>2</u>	<u>6</u>	<u>4</u>
Totals			9	27	18
THIRD QUARTER					
G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T7050		Work Planning and Scheduling	2	3	3
T7017		Remodeling and Alterations	1	6	4
T6620		Small Engine Repair	<u>2</u>	<u>6</u>	<u>4</u>
Totals			10	15	16

# GROUNDS KEEPER

## (A Three-Quarter Curriculum)

### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
M0300		Fundamentals of Mathematics	5	0	5
T7030		Lawn and Plant Care	1	6	3
T7034		Soil Preparation, Seeding and Planting	1	6	3
T6010		Safety and Fire Prevention	<u>3</u>	<u>0</u>	<u>3</u>
Totals			12	12	17
SECOND QUARTER					
T6620		Small Engine Repair	2	6	4
T6622		Small Machine Repair	2	6	4
T7019		Electrical and Mechanical Systems Maintenance	2	6	4
T7050		Work Planning & Scheduling	<u>2</u>	<u>3</u>	<u>3</u>
Totals			8	21	15
THIRD QUARTER					
G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T7032		Tree Surgery and Trimming	1	6	3
T7040		Concrete, Asphalt and Masonry	1	6	3
T7036		Trees, Plants & Grasses	1	6	3
G0505		Consumer Economics	<u>3</u>	<u>0</u>	<u>3</u>
Totals			11	18	16

## BUILDING CONSTRUCTION TECHNICIAN

### DESCRIPTION

This curriculum includes the technical subjects, laboratory and drafting practice necessary to develop the skills and technical knowledge required to plan and operate efficient construction projects, including business management; scheduling materials and the various work processes; coordinating work of subcontractors; preparation of records and reports and directing work crews. Technical subjects in this program of training include Estimating, Technical Mathematics, Applied Physics, Mechanics, Strength of Materials, Materials of Construction, Field Construction Practices, Mechanical Drawing and Graphics. Supplementing the technical subjects are courses in Principles of Supervision, Principles of Business Management, Principles of Project Scheduling, Technical Report Writing and laws applicable to construction work. Laboratory practice includes practical problems in laying out and organizing construction projects; developing plans and specifications; practice in keeping accounts; experimentation with and testing materials, and directing actual construction activities such as movement of materials, hoisting equipment, testing controls, or placing concrete.

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in the construction industry. The candidate for training must be able to profit from such post-high school training. High School courses in geometry, wood working, and drafting will be helpful.

### EMPLOYMENT

Graduates of this curriculum may find employment as construction engineering aides, assistants to job superintendents for mechanical and specialty contractors, technicians in the ready-mixed or precast concrete industry, technical salesmen and inspectors.

# SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
G0201		Communication Skills I	3	0	3
T8001		Construction Tool Maintenance and Safety	2	0	2
MO300		Fundamentals of Mathematics	5	0	5
T8002		Construction Blueprint Reading I	2	0	2
T8005		Construction I - Wood	<u>2</u>	<u>9</u>	<u>5</u>
Totals			14	9	17
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
T8003	T8002	Construction Blueprint Reading II	2	0	2
T8006		Construction II - Concrete	2	9	5
MO306		Mathematics for Woodworkers I	2	0	2
T6430		Building Materials	<u>4</u>	<u>0</u>	<u>4</u>
Totals			13	9	16
THIRD QUARTER					
MO307	MO306	Mathematics for Woodworkers II	2	0	2
T6429		Building Codes	3	0	3
T8007		Construction III - Electrical	2	9	5
T6420		Architectural Drawing I	<u>4</u>	<u>9</u>	<u>7</u>
Totals			11	18	17
FOURTH QUARTER					
G0204	G0201	Report Writing	3	0	3
T8008		Construction IV - Plumbing, Heating, Ventilation	2	9	5
T6421		Architectural Drawing II	3	9	6
T8020		Applied Woodworking I	<u>1</u>	<u>9</u>	<u>4</u>
Totals			9	27	18

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIFTH QUARTER					
T8021		Applied Woodworking II	1	12	5
T6434		Estimating	3	0	3
T6437		Contracts and Specifications	3	0	3
T6444		Surveying and Measurement I	3	6	4
T8034		Machine Maintenance	<u>3</u>	<u>0</u>	<u>3</u>
Totals			13	18	18

SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T8022	T8021	Applied Woodworking III	1	12	5
T6001		Personnel Management for Unit Supervisors	<u>3</u>	0	3
T		Technical Elective	<u>3</u>	<u>-</u>	<u>3</u>
Totals			12	12	16

## FLUID POWER TECHNICIAN

### DESCRIPTION

The curriculum for Fluid Power Technicians provides theoretical and laboratory training for those seeking careers in the fields of hydraulics and pneumatics on a technician's level. The laboratory includes facilities for testing fluid power components and hydraulic fluids. Fluid power circuits are built up, and their operational characteristics are observed and evaluated. The hydraulic and pneumatic circuits studied in this program are those which apply to the machine tool industry, construction and materials handling equipment, assembly of finished products, presses, molding machines, rolling mills, die casting machines, and many other uses.

### GENERAL QUALIFICATIONS

Entrance requirements include that the student be a high school graduate or the equivalent. Applicants should demonstrate through testing an aptitude and sincere desire for a career in fluid power. The candidate for training must be able to profit from such post-high school training. High School courses in mechanics, mathematics, blueprint reading, and drafting will be helpful.

### EMPLOYMENT

The advent of automation in recent years has placed tremendous emphasis on the development of machines which are actuated by means of fluid power and controlled electronically. Employment opportunities exist in development, production, laboratory testing, systems analysis, and sales and service recommendations in all phases of industrial fluid power.

### SUGGESTED CURRICULUM BY QUARTERS

<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
FIRST QUARTER					
GO201		Communication Skills I	3	0	3
MO300		Fundamentals of Mathematics	5	0	5
T9001		Basic Hydraulics	2	9	5
T6010		Blueprint Reading	<u>1</u>	<u>3</u>	<u>2</u>
Totals			11	12	15



<u>Course Number</u>	<u>Rec. Compl.</u>	<u>Description</u>	<u>Class Hours</u>	<u>Lab. Hours</u>	<u>Credits</u>
SECOND QUARTER					
G0202	G0201	Communication Skills II	3	0	3
T9003		Fluid Power Fundamentals	2	12	6
T6502		Electricity	4	6	4
M0341		Technical Mathematics I	<u>5</u>	<u>0</u>	<u>5</u>
Totals			14	18	18
THIRD QUARTER					
T6506		Electronics I	4	6	4
M0342		Technical Mathematics II	5	0	5
T9005		Fluid Power Circuitry I	<u>2</u>	<u>12</u>	<u>6</u>
Totals			11	18	15
FOURTH QUARTER					
G0204	G0201	Report Writing	3	0	3
T6507	T6506	Electronics II	4	9	7
T9006	T9005	Fluid Power Circuitry II	<u>2</u>	<u>12</u>	<u>6</u>
Totals			9	21	16
FIFTH QUARTER					
T9010		Applied Fluid Mechanics	2	12	6
T6557		Industrial Control Circuits	3	3	4
T6850		Introduction to Machine Repair	<u>3</u>	<u>9</u>	<u>5</u>
Totals			8	24	15
SIXTH QUARTER					
G0850		Introduction to the World of Work	2	0	2
G0755		Human Relations	3	0	3
T9020		Pneumatics	2	12	6
T9030		Fluid Power Systems Analysis	<u>2</u>	<u>12</u>	<u>6</u>
Totals			9	24	17



# STUDENT CURRICULUM PLANNING

QUARTER \_\_\_\_\_

Course Number	Description	Credits	Hours	Grade
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
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_____	_____	_____	_____	_____
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TOTALS				

QUARTER \_\_\_\_\_

Course Number	Description	Credits	Hours	Grade
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TOTALS				

QUARTER \_\_\_\_\_

Course Number	Description	Credits	Hours	Grade
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TOTALS				

# STUDENT CURRICULUM PLANNING

QUARTER \_\_\_\_\_

Course Number	Description	Credits	Hours	Grade
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TOTALS

QUARTER \_\_\_\_\_

Course Number	Description	Credits	Hours	Grade
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TOTALS

QUARTER \_\_\_\_\_

Course Number	Description	Credits	Hours	Grade
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_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

TOTALS

## Section III

# Course Descriptions



# PRE-TECHNICAL COURSES

		Cls.	Lab.	
		Hrs.	Hrs.	Crs.
0101	Preparatory Communication Skills I	3	0	0

This introductory course consists of the study of the use of the English language through the media of grammar, composition, reading, speaking, and writing.

0104	Developmental Reading	2	4	0
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This course includes intensive practice to improve concentration, rate of reading, comprehension, and retention of written material.

0130	Preparatory Mathematics	3	0	0
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The purpose of this course is to supply an intensive review of basic arithmetic. Material reviewed includes fractions, decimals, percentage, ratio and proportion, taper problems, square root, and the principles of Algebra and Geometry.

0131	Algebra	3	0	0
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This is essentially basic technical algebra. The material covered includes the fundamental operations of positive and negative numbers, grouping symbols, algebraic axioms, equations, special products and factoring, solution of quadratic equations, and the solution of practical problems.

Recommendation: 0130

0132	Geometry	3	0	0
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This is an introductory course in geometry. The material covers the definitions and description of geometric terms, axioms, and theorems. An explanation is given to propositions dealing with straight lines, triangles, and circles, with applications to practical problems.

Recommendation: 0130 or 0131

0133	Trigonometry	3	0	0
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This course covers definitions of the trigonometric functions, construction and use of trigonometric tables, interpolation, solution of

0140	Preparatory Physics	3	2	0
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Recommendation: 0131

0150	Preparatory Chemistry	3	2	0
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Recommendation: 0130

0160	Preparatory Biological Science	3	2	0
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# COMMUNICATION SKILLS

Cls. Lab.  
Hrs. Hrs. Crs.

0201 Communication Skills I 3 0 3

Designed to aid the student in the improvement of self-expression in grammar. The approach is functional with emphasis on grammar, diction, sentence structure, punctuation, and spelling. Intended to stimulate students in applying the basic principles of English grammar in their day-to-day situations in industry and social life.

0202 Communication Skills II 3 0 3

Designed to aid the student in the improvement of self-expression in business and technical composition. Emphasis is on the sentence, paragraph, and whole composition.

Recommendation: 0201

0203 Business Communications 3 0 3

Develops skills in techniques in writing business communications. Emphasis is placed on writing action-getting sales letters and prospectuses. Business reports, summaries of business conferences, letters involving credit, collections, adjustments, complaints, orders, acknowledgements, remittances, and inquiry.

Recommendation: 0202

0204 Report Writing 3 0 3

The fundamentals of English are utilized as a background for the organization and techniques of modern report writing. Exercises in developing typical reports, using writing techniques and graphic devices are completed by the students. Practical application in the preparation of a full-length report is required of each student at the end of the term. This report must have to do with something in his chosen curriculum.

Recommendation: 0202

0210 Oral Communication 3 0 3

A study of basic concepts and principles of oral communications to enable the student to communicate with others. Emphasis is placed on the speaker's attitude, improving diction, voice and the application of particular techniques of theory to correct speaking habits and to produce



effective oral presentation. Particular attention given to conducting meetings, conferences, and interviews.

Recommendation: 0201

0211 Public Speaking 3 0 3

A course designed to provide further instruction in the essential speech processes with emphasis on persuasion. This includes a discussion unit involving group deliberation aimed at the cooperative solution of a problem through logical presentation of evidence and reflective thinking. Opportunities for self-analysis and self-criticism.

0220 Reading Improvement 2 0 2

Designed to improve the student's ability to read rapidly and accurately. Special machines are used for class drill to broaden the span of recognition to increase eye coordination and word group recognition and to train for comprehension in larger units.

0230 News Writing 3 0 3

Emphasis on journalistic writing techniques and on methods of gathering and interpreting the news. The course covers writing news and the feature story, interviewing, and developing an awareness of the determinants and the components of news. Discussion of the reporter's duties, responsibilities, and prospects.

0231 Advanced News Writing and Editing 3 0 3

Emphasis on writing for the college newspaper and freelance writing and on editing. The course deals with the actual writing of articles for the school newspaper, copy-reading, rewriting, headline writing and page layout.

0240 Terminology and Vocabulary Development for Secretarial Science Careers 3 0 3

To develop an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in business, technical, legal and professional offices.

0245 Terminology and Vocabulary Development  
for Medical Careers

3 0 3

To develop an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in medical careers. An introduction to Latin and Greek root forms and commonly used medical terms.

# MATHEMATICS

Cls. Lab.  
Hrs. Hrs. Crs.

## 0300 Fundamentals of Mathematics

5 0 5

Practical number theory. Analysis of basic operations: addition, subtraction, multiplication and division. Fractions, decimals, powers and roots, percentages, ratio and proportion. Plane and solid geometric figures used in industry; measurement of surfaces and volumes. Introduction to algebra used in trades. Practice in depth.

## 0301 Mathematics for Auto Mechanics I

2 0 2

Principles of arithmetic are reviewed and essential principles of algebra are taught. These principles are then used in solving problems in an auto machine shop. Systems of measurement, uses of various tables, gauges and their calibrations, the decimal system, fractions and angular measurement are stressed.

## 0302 Mathematics for Auto Mechanics II

2 0 2

Basic principles of algebra are reviewed and basic principles of geometry are taught. There is special emphasis on using algebra to work formulae problems. Topics covered include strength of material, work and power, tapers, speed, ratios of pulleys and gears, screw threads, cutting speed and feed, and gears.

## 0303 Mathematics for Auto Body

2 0 2

Principles of arithmetic are reviewed and essential principles of algebra are taught. These principles are then used in solving problems in an auto body shop. Systems of measurement, uses of various tables, gauges and their calibrations, the decimal system, fractions and angular measurement are stressed.

## 0304 Mathematics for Diesel I

2 0 2

Principles of arithmetic are reviewed and essential principles of algebra are taught. These principles are then used in solving problems in a diesel engine shop. Systems of measurement, uses of various tables, gauges and their calibrations, the decimal system, fractions and angular measurement are stressed.

## 0305 Mathematics for Diesel II

2 0 2

Work on use of formulae is stressed throughout this course. Topics covered include strength of material, work and power, speed ratios of pulleys and gears, screw threads, and gears.

0306 Mathematics for Woodworkers I 2 0 2

Those principles of arithmetic necessary to woodworking are reviewed and applicable principles of algebra are taught. Linear measurement, angular measurement and strength measurement are stressed.

0307 Mathematics for Woodworkers II 2 0 2

The basic ideas of algebra, geometry, and trigonometry are reviewed or taught. Topics covered include strength of materials, work and power, and tapers. Problems pertaining to woodworking include those on board measure, flooring, shingles and stairs.

0308 Mathematics for Welders I 2 0 2

Principles of arithmetic are reviewed and typical welding shop problems are studied. Systems of measurement are stressed as are problem concerning temperature, caulking and fitting, pressure, material density and strength.

0309 Mathematics for Welders II 2 0 2

The basic ideas of algebra and geometry are reviewed or taught. Topics covered include strengths of material, work and power, tapers, screw threads and gears.

0310 Mathematics for Machinists I 3 0 3

The basic principles of arithmetic are reviewed and basic principles of algebra are taught. Essential principles of geometry are taught. These various principles are then used in learning to solve problems encountered in a machine shop.

0311 Mathematics for Machinists II 3 0 3

The basic ideas of algebra, geometry and trigonometry are reviewed or taught. Other topics covered with problems especially designed for the machine shop are strengths of material, work and power, tapers, speed ratios of pulleys and gears, screw threads, cutting speed and feed, gears, and milling machine work.

0312 Mathematics for Chefs 3 0 3

Arithmetic skills are taught or reviewed. Figuring costs and esti-

mating for buying are stressed as well as the math necessary for simple bookkeeping and tax records. Mathematics for increasing and decreasing recipes, interpreting recipes to suit given kitchen circumstances are also taught.

0313 Mathematics for Printers I 2 0 2

This course covers the kind of mathematical problems that confront a printer. The course content includes multiplication, division, addition, figuring ems of type, cost of composition, stock estimating for cutting and cost, and copy fitting.

0314 Mathematics for Printers II 2 0 2

Mathematics applicaion for printing trades during this semester will include problems and work on copy filling, weight, cost, and cutting paper stock, and scaling photograph and copy.

0315 Mathematics for Electricians 3 0 3

This course provides practical problem material for electrical students with an introduction to algebraic formulas, plane geometry, and elementary trigonometry. Emphasis is placed on applications of problems which are arranged in the natural order of dependence of one topic on the next.

0316 Mathematics for Medical Occupations 2 0 2

An introduction to the basic mathematics applicable to health occupations with regard to chemistry and science.

0317 Business Mathematics 5 0 5

This course stresses the fundamental operations and their application to business problems. Topics covered include payrolls, price marking, interest and discount, commission, taxes, and pertinent uses of mathematics in the field of business.

0318 Mathematics of Finance 4 0 4

Further study of business mathematics and applications; including units of instruction and practice in simple interest and discount, com-

pound interest and discount, equations of value, annuities certain, amortization and sinking funds, depreciation, logarithms, valuation of bonds, life annuities and life insurance, etc.

0319 Statistics 4 0 4

This is a course in the organization and interpretation of statistical data; including frequency distributions, averages, graphic presentation, measures of dispersion, correlations, index numbers, analysis of time series, including trends, cycles, and seasonal variation, etc.

0320 Slide Rules and Graphs 2 0 2

Principles and use of the slide rule for division, multiplication, trigonometry, powers, and roots. Properties and types of coordinate graphs; uniform, log, semilog, and others.

0330 College Geometry 4 0 4

Fundamental properties and definitions; plane and solid geometric figures, selected general theorems, geometric construction of lines, angles and plane figures. Dihedral angles, areas of plane figures, volumes of solids. Geometric principles are applied to shop operations.

0331 College Trigonometry 4 0 4

Trigonometric ratios; solving problems with right triangles, using tables, and interpolating; solution of oblique triangles using law of sines and law of cosines; graphs of the trigonometric functions; inverse functions; trigonometric equations. All topics are applied to practical problems.

0332 Calculus and Laplace Transforms for Electronics 5 0 5

An investigation of the methods of calculus which are of the most direct use in the study of electronic circuits. Introduction to selected topics from differential equations and Laplace transforms and applications of these methods to the solution of electronic circuit problems.

0341 Technical Mathematics I 5 0 5

The real number system is developed as an extension of natural numbers. Number systems of various bases are introduced. Fundamental

algebraic operations, the rectangular coordinate system, as well as fundamental trigonometric concepts and operations are introduced. The application of these principles to practical problems is stressed.

0342 Technical Mathematics II 5 0 5

Advanced algebraic and trigonometric topics including quadratics, logarithms, determinants, progressions, the binomial expansion, complex numbers solution of oblique triangles and graphs of the trigonometric functions are studied in depth.

0343 Technical Mathematics III 5 0 5

The fundamental concepts of analytical geometry, differential and integral calculus are introduced. Topics included are graphing techniques, geometric and algebraic interpretation of the derivative, differentials, rate of change, the integral and basic integration techniques. Applications of these concepts to practical situations are stressed.

0344 Technical Mathematics IV 5 0 5

More advanced concepts of differentiation and integration are considered. Included are graphs and derivatives of the trigonometric functions, exponential and logarithmic differentiation and integration, advanced integration techniques, polar equations, parametric equations, and Fourier series.

0350 Descriptive Geometry 4 0 4

A study of three dimensional problems of points, lines, planes, and curvilinear surfaces, intersections and developments, concurrent vectors and spherical triangles. Emphasis is given to visualization of the relationship of objects in space through graphical analysis and solution of space problems

Recommendation: 0330 or 0344

## SCIENCE

Cls. Lab.  
Hrs. Hrs. Crs.

0401 General Biology I 3 2 4

A study of basic biological concepts with evolution as the recurring theme including ecological control, molecular biology, cellular organization and function.

0402 General Biology II 3 2 4

A continuation of 0401 emphasizing control mechanisms, and patterns of reproduction, development, growth, and behavior.

0403 General Biology III 3 2 4

A continuation of 0402 emphasizing taxonomy, ecology, biogeography, the history of life, and field biology. Special projects and field trips both local and distant will stress the practical application of the basic principles and concepts studied in 0401 and 0402.

0406 Microbiology 2 2 3

A study of microbiology with emphasis on the application of science to the problems of sterilization, infection, resistance, diagnostic testing, and immunization. Laboratory exercises will deal with bacteriological techniques and aseptic procedures.

0410 Anatomy and Physiology 3 0 3

A study of the anatomy and physiology of the human body as an integrated unit, including basic principles, the cell, epithelial and connective tissues, the skeleton, muscular and nervous systems. Also including the study of the circulatory, respiratory, digestive, excretory, endocrine, and reproductive systems, and human development.



0420 General Botany I 3 4 5

The study of the plant kingdom with emphasis upon the non-flowering plants.

0421 General Botany II 3 4 5

The continuation of 0420, with emphasis upon the flowering plants.

0431 General Chemistry I 3 2 4

The study of the fundamental theories and principles of chemistry, structure of atoms and molecules, classification and properties of elements and their compounds.

0432 General Chemistry II 3 2 4

The continuation of 0432 with emphasis upon a study of solutions, equilibrium and reaction kinetics. The laboratory exercises include methods of separating and identifying common cations and anions.

0434 Organic Chemistry I 3 2 4

The study of aliphatic, alicyclic, aromatic and heterocyclic organic compounds. The laboratory exercises include a study of class reactions and the synthesis of typical compounds.

0435 Quantitative Analysis 3 4 5

A study of the principles and practices of quantitative analysis including gravimetric, volumetric, and titrimetric methods. Instrumental techniques will be introduced where possible. To be offered upon sufficient demand.

0440 Introduction to Geology 3 4 5

The study of the major aspects of physical and historical geology including the origin, history and composition of the earth, the formation of its crust, and the processes which sculpture its surface.

0450 Physical Science I 3 2 4

The introductory study of mechanics, heat, sound, magnetism, electricity, systems of measurement, and the solar system.

0451 Physical Science II 3 2 4

The continuation of 0450. The course includes the study of atomic structure and of laws and principles of ionic and co-valent bonding.

0452 Physical Science III 3 2 4

The continuation of 0451. The course includes the study of soil development, evaluation of landscape, effects of glaciers, streams, winds, weather, and the geological time table.

0455 General Physics I 3 2 4

The introductory study of physics. This course includes study of machines and vector analysis, partial and rigid body mechanics, statics, and rotary motion.

0456 General Physics II 3 2 4

The continuation of 0455. The course includes the study of heat, sound, light, wave motions, and optics.

0457 General Physics III 3 2 4

The continuation of 0456. The course includes the study of electricity, magnetism, and atomic and nuclear physics.

## GENERAL

Cls. Lab.  
Hrs. Hrs. Crs.

0500 Introduction to Economics I 4 0 4

An introduction to economic principles, problems, and policies. The nature of economics and economic concepts and institutions.

0501 Introduction to Economics II 4 0 4

A course emphasizing theories of production, determination of prices and distribution of income in regulated and unregulated industries. Problems of the market economy. An examination of comparative economic systems.

0505 Consumer Economics 3 0 3

This course concerns economics from the standpoint of the consumer. Among the topics are included the role of the consumer in the economy, the cost of living and price levels, the factors affecting consumer choices, buying practices, management of personal and family finances, principles of buying, the role of government in consumer protection, and current consumer problems.

0550 Physical Geography 3 0 3

A study of the earth's astronomical relations, factors of weather, climate and physical features.

0551 Geography of North America 3 0 3

The study of the geographic factors involved in production, distribution and consumption of major natural resources in the North American continent. Particular emphasis is given to problems of conservation.

0600 Personal and Community Health 2 0 2

The study of basic human health and hygiene, with emphasis on the development of sound health habits and attitudes.

0610 First Aid and Accident Prevention 1 0 1

Designed to acquaint the student with causative factors involved in accident occurrence (psychological and personal as well as environ-

mental). Provides the student with basic principles of first aid techniques and gives the student the opportunity to practice first aid procedures.

0700 Introduction to Law 4 0 4

A study of the general laws, the nature of law, courts and court procedures, business crimes and torts, contracts, personal property, bailments, sales, commercial paper, and security devices.

0750 General Psychology 5 0 5

The introductory study of psychology. The course includes the study of principles of behavior in the areas of motivation, perception, learning, intelligence, and the organization of personality.

0751 Personal and Social Adjustment 5 0 5

A study of the dynamics of normal personality development. Emphasis is upon factors relevant to self evaluation and adjustment to the complexities of contemporary living leading to personality integration.

0755 Human Relations 3 0 3

A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation.

0800 General Sociology 5 0 5

The study of man in his social surroundings. Emphasis is upon the principle institutions in which individuals live. The phenomenon of social change and reconstruction is studied in light of the requirements which an open, democratic society places upon its institutions.

0850 Introduction to the World of Work 2 0 2

A study in the practical humanities under the coordination of the Student Personnel Services staff. Resource persons representing a variety of industrial and business organizations will participate in topics such as: locating jobs, job application and interviews, preparation of credentials, human relations, employer-employee expectations, personal grooming and

Cls. Lab.  
Hrs. Hrs. Crs.

appearance, labor laws, union membership, taxes, insurance, liability, trade and professional associations and organizations, occupational journals, further training, job upgrading, etc. The course is designed to equip the student for smooth transfer from training to the world of work.

# AGRICULTURE

Cls. Lab.  
Hrs. Hrs. Crs.

1004 Introduction to Agriculture 3 0 3

A review of the functions of the agricultural manager and an introduction to the principles he uses in making decisions to adjust to changing conditions. Analysis of the agricultural industry, price systems, Federal policies, International Trade, parity and economic growth, which affect agricultural business.

1007 Agricultural Biochemistry 3 2 4

Basic principles of chemistry to provide a foundation for courses in Agronomy, Soil Science, and Animal Nutrition and an understanding of agricultural chemicals.

1011 Applied Entomology 2 2 3

The principles of insect identification, general life histories, and controls. Special consideration is given to the properties of important insecticides and methods of application.

1073 Soil and Wildlife Conservation 1 4 3

A study of the principles of conservation with emphasis on surveying, open and tile drainage systems, contouring, farm ponds, and mapping as they apply to soil and water conservation, farm woodlot management, land use classification, soil conservation organizations.

1080 Agricultural Marketing 2 2 3

A study of the economic functions performed by various specialized marketing agencies. Emphasis on Co-Op Marketing. Institutional marketing, and governmental marketing agencies.

1103 Introduction to Animal Hospital Procedures 3 0 3

An introductory overview of animal hospitals and their practices, procedures, equipment and facilities with emphasis on the role of the graduate of the Animal Hospital Technician program in animal hospitals.

1105 Animal Science

4 2 5

An introductory animal science course covering the fundamental principles of livestock production. A study of the animal body and the basic principles of reproduction, genetics, growth, fattening, digestion, along with the selection, feeding, improvement, processing and marketing of livestock.

1111 Animal Nutrition

3 2 4

A course dealing with the principles of nutrition and their application to feeding practices of small animals. Feeding practices and principles for each class of animals, preparation of rations, special rations; feed additives, special problems of feeding ill animals.

Recommendation: Permission of instructor

1112 Animal Anatomy and Physiology

3 4 5

A study of the structure and functions of the body of domestic animals; circulatory, respiratory, digestive, muscular, nervous, endocrine, excretive and reproductive systems. Detailed systematic and regional dissection of specimens.

1120 Animal Diseases and Parasites

2 2 3

A course dealing with the common diseases and parasites of animals; sanitation practices and procedures with emphasis on the cause, damage, symptoms, prevention and treatment of parasites and diseases, and management factors relating to disease and parasite prevention and control.

1124 Small Animals

3 0 3

The study of the common breeds of dogs, cats, and birds, stressing breed characteristic of importance in handling, care and treatment.

1129 Animal Health and Sanitation

3 2 4

Fundamental principles of animal health and sanitation including basic bacteriology, animal health factors, disease transmission and methods of control, immunization and methods of sterilization.

1130 Animal Care

3 4 5

A course designed to give the student a basic understanding of and to develop skills in animal care with regard to handling, restraint, grooming, management and post-operative care.  
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1131 Animal Breeding

2 4 4

Principles and practices involved in the improvement of livestock through culling and selection. The reproductive tracts, endocrine regulation of reproduction, gestation, and parturition are studied. The value and use of line breeding, close breeding, out crossing and artificial insemination are studied with emphasis on the livestock enterprise.

1135 Beef Production

2 2 3

The care, breeding, feeding, management, and showing of beef cattle. Also study in selection, housing and marketing and registering. Comparative studies of sheep and swine.

1150 Animal Laboratory Techniques

2 8 6

Principles and practices of laboratory work in the animal hospital. A course designed to develop proficiency in performing the laboratory tests essential in assisting the professional in care and treatment of animals. Laboratory examination of urine, blood, cell tissue, and feces. Use and care of laboratory equipment and facilities.

1181 Meat Products I

2 2 3

Principles and practices in the slaughtering and cutting of farm animals, preparation of animals and poultry for slaughter, wrapping, packaging, and processing of meat for home use and market.

1182 Meat Products II

0 4 2

Designed to give additional training and practical experience to students demonstrating the various cuts and qualities of meats. Demonstrations by students in cutting, wrapping, curing and freezing of meats are required.



1185 Dairy Cattle Management 2 2 3

Different types of testing and recording production records are studied and evaluated. Students become familiar with methods of testing, record compilation and the complete record system for a herd of dairy cattle. Records are analyzed according to production per cow, income over feed cost, size of cows, days in milk, average age of cows in a herd and feeding practices.

1186 Dairy Marketing 2 2 3

Principles that underlie the marketing of milk products. Critical analysis of co-operative organizations and the milk orders as to how they operate in the marketing of milk.

1202 Plant Science 4 2 5

An introductory general botany and crop science course covering the fundamental principles of the reproduction, growth, functions, and development of seed bearing plants with application to certain commercially important plants in Indiana.

1204 Plant Pathology 3 2 4

The purpose of this course is to teach the student the control of diseases of ornamental crops through a basic knowledge of structure, life history, and identification of the various parasitic disorders plaguing ornamental trees, shrubs, flowers, and turf.

1205 Soil Science and Fertilizers 4 2 5

A course dealing with basic principles of efficient classification, evaluation, and management of soils; care, cultivation and fertilization of the soil, and conservation of soil fertility.

1206 Irrigation and Drainage 2 2 3

Selection, operation and maintenance of irrigation equipment. Problems in farm drainage as well as engineering of soil erosion control methods.

1220 Plant Materials I 2 4 4

Introduction to the study of woody plant materials which gives an overview of the woody plants grown in nurseries for landscape purposes and those found in woodlands and fields of Indiana. Deciduous shrubs and small trees are emphasized in this course.

1221 Plant Materials II 2 4 4

Major emphasis in this course is placed upon the detailed study of broad leaved and narrow leaved evergreens.

1242 Forage and Seed Crops 2 2 3

Economical management practices for pastures, feed crops, and silage crops are investigated in relation to the timing and use of fertilizers on pasture and hay crops. Harvesting and handling methods, adaptation of various grasses and legumes to soil types, moisture conditions, and fertility levels, seeding mixtures for hay, pasture, and silage crops are discussed.

1243 Cereal, Bean and Grain Grading 2 4 4

A study of factors determining the grade for crops as they are bought and sold. Methods of storage, cultural practices and harvest methods are related to the quality of grain and beans.

1250 Crop Processing and Handling Equipment 3 2 4

A study of crop processing and handling equipment including drying and storage, materials handling, feed processing, tobacco harvesting and curing, cleaning and treating seeds, and farm transport equipment.

1260 Plant Propagation 3 2 4

A study of basic concepts and principles of sexual and asexual propagation. Techniques are learned through practical exercises conducted in laboratory sessions. Emphasis is given to those propagation methods widely utilized in the industry.

1261 Greenhouse Management 3 2 4

Fundamentals and practices in greenhouse plant production. Construction and management of plastic and glass greenhouses, including the control of heat, light, ventilation and humidity. Crop studies include both cut flower and pot plant crops.

1262 Landscape Gardening I 3 2 4

An introduction and study of the basic principles of landscape design. Considerable emphasis is placed on the problems associated with residential site development. The course offers a section devoted to blueprint reading. Considerable laboratory time is devoted to visitations to established residential sites. The course is not oriented toward a mastery of creativity and artistry, but simply toward an understanding of certain basic principles fundamental to all landscape design endeavors.

1263 Landscape Gardening II 3 2 4

Development and maintenance of landscape areas including planting, pruning, fertilization, and pest control. Fundamentals of landscape economics: costs, contracts, calculating areas, volumes, and plant qualities for landscape projects. Selection and use of materials in landscape construction.

1270 Nursery Management I 3 2 4

An introductory study of nursery operations to acquaint the student with the diversity of nursery plant production, equipment, and operation detail through study of such areas of balling and burlapping, pruning, fertilization, plant protection, and others. Additional emphasis is placed on the theory and practices necessary to produce profitable nursery stock.

1271 Nursery Management II 3 2 4

Emphasis placed upon production schedules, choice and quantities of stock to be grown, as well as developing cost finding, price establishing, and record keeping for economically important nursery crops. Planning of nursery layout and facilities will also be undertaken.

1274 Turf Grass Management 2 2 3

A study of turf grasses including identification, seeding esta-

blishment, use, and maintenance management. Construction and design of golf courses are considered.

1301 Farmstead Systems 4 2 5

The selection and planning of farm buildings, construction of feeding systems, use of drying equipment, efficient movement of feed and waste, and the use of electric power.

1320 Advertising Farm Products 3 0 3

Types of advertising useful to farmers. The effect of national promotional campaigns in selling farm products.

1380 Farm Management and Accounts 2 2 3

Selection of a farm, farm leasing, partnerships, use of credit and farm insurance. Includes simple farm accounting, use of accounts in farm business analysis and income tax reporting.

1387 Farm Management I 2 2 3

Fundamentals of organization and operation of different types of farms, efficiency factors, important farm organizations and specific farm operations examined.

1388 Farm Management II 2 2 3

A study of credit, insurance, legislation, income tax, and social security as they apply to the farmer, and the establishment of a farm business.

1390 The Elevator and Farm Supply Industry 2 2 3

Topics include plant layout, equipment, services, futures trading, and record keeping. Several field trips supplement classroom work.

1391 Country Elevator Management 3 0 3

The functions of management. Topics covered include purchasing,

inventory, merchandising, credit, record keeping, financing, plant and equipment, etc.

1402 Farm Machinery I 2 2 3

Basic mechanical principles of plows, planters, mowers, choppers, combines and other common farm machines. Principles of safety and study of machinery economics.

1403 Farm Power 2 2 3

Construction, operation and servicing of gasoline engines and tractors; valve timing, ignition, and engine and tractor maintenance.

1404 Farm Machinery II 2 4 4

A study of the operating principles of simple farm implements. The selection, field operation, maintenance and repair of basic farm machinery such as plows, disks, harrows, and cultivators. Includes principles of design and mechanics, power supply, hitching, and economics of farm machinery use.

1405 Farm Machinery III 2 4 4

Care, repair, and selection of the larger units of farm equipment. Operating principles of self-propelled and tractor-drawn equipment will be studied in the classroom and the field. Such equipment as balers, combines, corn pickers, cotton pickers, and peanut harvesters will be included.

1410 Tractor Engines I 4 2 5

Tractor engine fundamentals. Principles of engine operation, including horsepower calculations, efficiency, combustion theory, types of engines, cylinder and valve arrangements, lubrication, fuel and cooling systems. Laboratory work consisting of demonstrations, disassembly, inspection and reassembly of various engines.

1411 Tractor Engines II 4 2 5

A study of tractor electrical systems, lubrication systems and lubricants.

1412 Tractor Engines III 4 2 5

Theoretical and practical study in correlating previous instruction by putting into practice engine operation, tuning and adjusting, including troubleshooting. This is performed in conjunction with the latest diagnostic equipment.

1415 Agricultural Diesels I 4 2 5

Basic agricultural diesel engine principles, engine structure study, relationship of parts, exhaust systems, and thermodynamics of combustion. Although the course will be primarily a study of all diesel engines, emphasis will be placed on those particular points of interest pertaining to farm diesels.

1416 Agricultural Diesels II 2 4 4

Disassembly and reassembly of laboratory engines that would include the inspection, diagnosis, repair and final assembly of these engines. Engines are to be run-in on a dynamometer. Includes a study of diesel fuel systems.

1420 Tractor Systems 2 4 4

A comprehensive study of present-day automatic transmission, braking and steering systems which are found on tractors.

1421 Tractor Hydraulic Systems 3 2 4

The principles of hydraulics and their application to farm machinery. Components of tractor hydraulic systems, testing, maintenance and repair of hydraulic systems.

1424 Applied Hydraulics 1 2 2

A specialized study of tractor hydraulic systems with emphasis on demonstration, testing, maintenance, and repair of various systems. Class, laboratory, and field study of systems.

1430 Parts and Service Management 3 2 4

A study of the principles, practices, and procedures in the effi-

cient and profitable operation of the parts and service departments of a farm equipment retail business.

1431 Farm Shop

1 4 3

Development of skill, judgment and resourcefulness in the use of hand and power tools and welders for farm construction and repair, primarily in metal work.

2101	Typewriting I	2	2	3
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A course for beginners in typewriting. The development of fundamental touch typing techniques and skills and their applications; including: business letters, manuscripts, centering, tabulation, machine parts and care, speed development, etc.

2102	Typewriting II	2	2	3
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A continuation of Typewriting I with the higher development of vocational competency; includes typing of: business letters, forms, legal documents, reports, minutes of meetings, duplication masters, etc. Speed and accuracy is stressed.

Recommendation: 2101

2103	Typewriting III	2	2	3
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Stresses the improvement of production typewriting ability. Problem and production techniques will include: complex tabulation, statistical reports, rough draft, manuscripts, forms, etc.

Recommendation: 2102

2124	Office Machines	2	2	3
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A study of and skill development in the use of modern office machines; including: adding, calculating, varityping, bookkeeping, keypunching, IBM Executive, spirit duplication, mimeograph, offset, dictating and transcribing, and photocopying.

2131	Shorthand I	3	0	3
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Introductory course in shorthand. Complete shorthand theory presented with emphasis upon reading and writing accurately with correct techniques. Introduction to transcribing techniques. Students will be expected to reach a writing speed of 60-80 wpm on practiced material.

2132	Shorthand II	4	2	5
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Increased emphasis in writing and transcribing dictated subject matter. Development of skill in formulating new outlines in accordance



Recommendation: 2131

An alphabetic system of shorthand. Course emphasizes principles and theory of system. Speed building and transcription is stressed. Dictation speeds range from 40-80 wpm.

A laboratory course where students will transcribe machine-recorded dictation. Material will be progressively difficult with the objective of equipping students with a high degree of skill at transcribing all types of machine-recorded dictation. Correct use of grammar, spelling, letter format, etc., will be stressed along with the development of a high degree of productivity.

Development of ability to write new-matter dictation, improvement of transcription techniques and skill, introduction to specialized vocabularies, with increased emphasis on speed and accuracy.

Recommendation: 2132

Review of shorthand theory and specialized vocabulary development in the medical field, legal field, education field, distribution field, transportation field, etc.

Recommendation: 2132

Introductory course in the machine method of taking dictation. Emphasis is on the basic principles and theory of stenography stressing vocabulary building and stenograph transcription.

2142 Stenograph II

2 2 3

A continuation of Stenograph I continuing vocabulary building as well as development of skill and accuracy in taking dictation and transcription of dictated material.

2150 Medical Terminology and Shorthand

2 2 3

Practice in shorthand or speedwriting, utilizing medical terminology. Skill is developed to an acceptable standard incorporating medical terms.

2151 Medical Coding, Filing and Indexing

2 0 2

A study of medical terminology and coding systems and methods of filing and indexing medical information.

2152 Office Practices

4 0 4

A finishing course emphasizing the skills, techniques, and attitudes businessmen desire in office workers; including units of instruction in: human relations, office machines, business correspondence, mailing, filing, sales department functions, telephoning, purchasing department functions, personnel department functions, finding employment, etc. Laboratory experience in applying skills and knowledges gained in previous business courses will be provided.

2201 Accounting I

3 0 3

A comprehensive introduction to the fundamental principles of accounting as applied to the sole proprietor, partnership, and corporation; including: meaning and purpose of accounting, theory of debits and credits, journals, posting, accounts trial balance, financial statements, adjusting and closing entries, voucher systems, etc.

2202 Accounting II

3 0 3

Continuation of Accounting I emphasizing corporate accounting; including: surplus, dividends, stock and bonds, departmental accounting, manufacturing accounting, budget analysis, interpretation of financial statements, supplementary statements, etc.

Recommendation: 2201

## 2203 Accounting III

3 0 3

A review of the accounting process and records, and the nature and content of accounting statements. Further development of skill and knowledge of accounting; including: analysis of working capital; analysis and methods of valuation; and statement presentation of the following items: cash and temporary investments, receivables, inventories, current liabilities, investments, plant and equipment, intangible assets and deferred charges, corporated capital stock, etc.

Recommendation: 2202

## 2204 Accounting IV

4 0 4

Advanced accounting principles dealing with: partnerships, ventures, consignments, installment sales, statement of affairs, realization and liquidation reports, parent and subsidiary accounting, consolidated income statement, consolidated balance sheet, the equity method of accounting, cost method of parent accounting, estates and trusts, etc. Includes also an introduction to governmental and institutional accounting.

Recommendation: 2203

2211 Cost Accounting I

4 0 4

A study of the relation of cost accounting to management for control; including: the cost cycle, principles and methods of handling materials, labor costs, and manufacturing expenses. Course emphasizes job order cost accounting, etc.

Recommendation: 2204.

## 2212 Cost Accounting II

$$4 \quad 0 \quad 4$$

Continuation and extension of Cost Accounting I; including: process cost accounting, by-product and joint product cost accounting, estimated cost systems, budgets, standard costs, etc.

Recommendation: 2211

## 2215 Principles of Automated Accounting

4 0 4

A survey of accounting systems utilized by modern business and industry with special emphasis on mechanical, punch-card, and computer oriented systems. Units include: mechanical methods and devices,

integrated data processing, punch-card systems, organization and accounting control, systems, computers, computer accounting methods and systems, etc.

Recommendation: 2203

2221 Federal Taxation 3 0 3

Theory and practice of income tax accounting as it applies to individuals, partnerships, and corporations.

Recommendation: 2203

2231 Auditing 4 0 4

A study of the principles and accepted procedures of auditing for internal check and related types of public accounting engagements; including: procedures, working papers, reports, working statements, etc.

Recommendation: 2204

2251 Introduction to Business 3 0 3

An introductory study and analysis of our business system as a whole and in relation to our economic society. A survey of business ownership, organization, principles, problems, management, control, facilities, administration, and practices to develop an understanding of American business enterprises and their functions.

2261 Real Estate 4 0 4

An introductory course in real estate; including: appraisal of real estate, listing contracts, offers to purchase, warranty deeds, mortgages, taxes, insurance, contractor's liens, real estate laws, real estate values, sales promotion, financing, etc.

2271 Insurance 4 0 4

The various types of insurance, including: life, health and accident, hospitalization, fire and storm, burglary, liability, automobile, marine; types of insurance companies; types of coverage; problems; government regulation; etc., are covered in this course. An introductory course for further study in a specialized field.

2281 Commercial Law

4 0 4

A survey of the basic principles of law and their application to business; including: contracts, negotiable instruments, sale of goods, agency, real estate, personal property, bailments, employee-employers, labor laws, etc.

2301 Introduction to Data Processing

3 0 3

This course is designed to give a general introduction to acquaint the students with the development of basic computer systems, and provide a foundation for detailed study of specific systems. Topics include historical points, computer codes, core storage, disk, drum, and other random access systems; central processing unit; fixed and variable word length computers; input-output devices, stored program concepts; and programming systems.

2311 Tabulating Equipment

3 8 5

A study of all phases of unit record equipment from key punch through accounting machines. Board wiring and documentation fundamentals are taught. Practice problems provide actual experience in machine operation and applications.

2312 Introduction to Computer Programming

5 8 7

The student will study the functions and capabilities of a specific computer utilizing programming techniques for a machine oriented language. They will become familiar with many of the tools and materials available to the programmer and will use adopted standards for documenting their work in the computer laboratory. They will have written, assembled, and tested several programs in order to help develop programming skills.

2321 Programming Card Systems

5 8 7

Advanced programming techniques are covered. The use of subroutines, programming in modules, linkage, and indexing are developed. These new techniques are related to documentation standards and are applied to accepted methods of testing and debugging. Common input-output routines are also introduced. Several programs are written and tested during the laboratory time.

2330	Systems Design and Analysis I	7	8	9
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2331	Systems Design and Analysis II	7	8	9
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2340	Data Processing for Managers	3	0	3
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2350	Key Punch Operations	1	12	4
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Recommendation: Typing I or equivalent.

## DISTRIBUTIVE EDUCATION

Cls. Lab.  
Hrs. Hrs. Crs.

3001 Introduction to Distributive Education 3 0 3

A study of the distributive system, including: marketing functions and policies; distribution costs; consumption patterns; channels of distribution; marketing of consumer, speciality, agricultural, and industrial goods; service marketing; functional middlemen.

3005 Principles of Retailing 3 0 3

Topics covered are business location, building fixtures and equipment, store layout, retail management organization, purchasing procedures, merchandise discounts and ordering policies, product inventory control systems, planning the merchandise budget, receiving, checking, and marketing merchandise, retail store promotions, pricing, retail store services, and trends in marketing.

3007 Principles of Wholesaling 3 0 3

An advanced study of the evolution, economic status, and management of non-retail marketing. Position of wholesaling in distribution. Kinds of wholesaling, types of middlemen, internal organization and operation of wholesalers, trading areas. An advanced analysis relationship between marketing policies of wholesaler and manufacturer and changing patterns of wholesale distribution.

3009 Transportation 3 0 3

An analysis of the systems of the major modes of transportation in the United States. Areas of study include: transportation function, modes of transportation, geographic layout, costs, rate determination, financing and management, facilities, equipment, services, coordination, problems, etc.

3015 Small Store Management 3 0 3

Includes principles of operation and management applicable to small stores. Special attention is paid to investigating business opportunities, organizing, financing, and controlling small business. Group projects are investigated by students in areas such as financing, incorporating, and obtaining legal advice.

3017 Distributive Occupational Research and Analysis 3 0 3

Career pursuits are investigated in the general area of distribution

of goods and services. Study includes research of specific jobs or field opportunities. Activities include interviews, collection of occupational information, and field observations. An analysis is made of selected internal business disciplines either through library research or field observations.

3019 Retail Buying in Merchandising 3 0 3

Analysis is made of the principles and methods that determine successful merchandise selection. Included in the study are organizations for buying, knowing what to buy, determining where and how to buy, and the aspects of merchandising involved in selling.

3020 Credit Procedures 3 0 3

Principles and methods of credit administration in the mercantile and retail field, including sources of information, credit policy, credit control, legal remedies, and collection techniques are covered.

3025 Salesmanship I 3 0 3

Salesmanship deals with the principles of selling in retail and wholesale businesses. Steps in the sale, rules of selling, prospective problems, attitude of buyer and salesman, the interview, methods of closing the sale, and types of customers are topics given attention.

3026 Salesmanship II 2 0 2

A survey course of sales and the techniques of selling a service. Equal stress is placed on selling the product as well as selling the service. The course covers all phases of the sales including approach, demonstration, close and departure. A short section is given on development of the personality and the art of selling one's self.

3027 Sales and Marketing Management 4 0 4

Topics studied include product planning, market investigation, sales organizations, sales programs and campaigns, and management of sales and service personnel. Deals with the theory and practice of leadership. Emphasis is placed on problem solving, decision making, creativity, interviews, goal setting, and leadership philosophy.



3050 Principles of Purchasing

4 0 4

The organization and operation of a purchasing department; policies dealing with inventory control, vendor relations, purchasing responsibilities, evaluation of suppliers, source selection, value techniques, standardization, scrap disposal, contract legalities and negotiations. Lease or buy considerations are studied in conjunction with capital equipment acquisitions.

3100 Principles of Advertising I

3 0 3

The purposes of advertising, the economic and social aspects of advertising, slogans, trademarks, idea visualization, the mechanical production of advertisements, the media plan, newspaper advertising, radio advertising, television advertising, direct mail advertising, outdoor advertising, packaging and labeling, and the advertising campaign will be covered.

3101 Principles of Advertising II

2 0 2

An advanced study of the practical application of advertising principles. The student will plan his own campaign utilizing several types of media, analysing the market, and establishing a budget.

3102 Display Advertising

3 0 3

A practical applications course in the field of advertising and display; including: scope and purpose of advertising, measurement of effectiveness, advertising media, costs, circulation data, schedules, cycles, layout, packaging, agencies, advertising laws, elements and principles of display, counters, showcases, lettering, etc.

3103 Visual Merchandising

3 0 3

A study of the principles of exterior and interior display techniques and the coordination of these techniques with current advertising and promotion plans. The basic principles of display and design, color and arrangement are applied in practical situations. The student constructs displays. The basic skills involved in using various pens to construct effective window and interior showcards are taught.

3201 Service Station Management

3 0 3

This involves a study of service station operation. Basic management

functions are identified, such as: customer, community, and employee relations; training techniques; communication; records, tax management, compensation plans; security, insurance, inventory control systems; use of statistics, and government records. Techniques of creativity and problem solving are applied to the management functions.

3203	Service Station Marketing	3	0	3
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This course is designed to survey the petroleum industry. Particular attention is given to channels of distribution, types of establishments, finance, competition promotion, pricing, costs, role of government research, credit, business operations, identity of goods and services, and management techniques.

3205	Service Station Internship	2	4	4
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Student intern in an approved service station. This is cooperative training whereby the service station and school work jointly to provide meaningful training experience. Students are given the opportunity to apply training to job environment. Reports, projects, and evaluation are assigned to enhance this intern experience.

3401	Principles of Fashion Merchandising	3	0	3
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The background, evolution, economic status, and importance of the fashion industry are covered. Emphasis is placed on the nature of fashion products, purchase motivation, and current practices in the merchandising of fashion.

3402	Principles of Fashion Design	3	0	3
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A basic course to assist the student in applying basic art principles to fashion merchandise. Students learn to recognize the qualities of good design through practice and experimentation with line, shape, color, and texture. Dress design and problems facing designers today are included.

3403	Clothing Design and Selection	2	0	2
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Helping customers achieve a well coordinated appearance is only possible when the principles behind coordination are understood. This course coordinates customer needs with current trends in fashion. Design principles, coordinated appearance, and customer preference in selecting fashion merchandise are emphasized.

3406 Non-Textiles

2 0 2

Non-textiles includes the study and analysis of items such as jewelry, leathers, furs, shoes, handbags, and gloves. Construction principles are emphasized as well as measures of quality.

3411 Fashion Coordination

2 0 2

This includes an exploration of the various jobs, fashion show direction, wholesale and retail consultation, public relations and publicity, and photography. Students gain experience in presenting written and oral fashion reports. Experience in coordinating store fashion displays is gained through individual projects.

3412 Fashion Promotion and Show Production

1 0 1

Fashion shows are analyzed as a means of presenting fashion information. Students explore the sources of information, principles, procedures, and techniques involved in fashion show production. As part of the course, students produce a fashion show.

3415 Fashion Industries

3 0 3

A study is made of the development of the foreign and domestic fashion industries with special emphasis on primary and secondary markets. The role of fashion designers and their designs is analyzed.

3420 Distributive Education Internship

1 15 6

Student interns in an approved distributive retail or wholesale operation. This is a cooperative training plan whereby the student and the school work jointly in providing meaningful training experiences. Students are given an opportunity to apply their training in a job environment. Reports and projects are assigned to enhance this internship and are coordinated between the approved distributive manager and the college supervisor. The type of internship will depend on the area of specialization such as service station, retail and wholesale establishments.

# HOSPITALITY CAREERS

Cls. Lab.  
Hrs. Hrs. Crs.

3550 Introduction to Hospitality Careers 1 0 1

A study of the hospitality field, its history, famous people and the socio-economic importance of its operation. In this survey course, the student is provided with a general understanding of organizational structures and its component services for successful management of hotels, motels and restaurants.

3502 Hospitality Careers Job Analysis and Procedures 2 0 2

An in-depth study of each occupational group employed by motels, hotels, restaurants and institutions. Definitions of each occupation are outlined and written job descriptions are studied.

3504 Hotel-Motel Maintenance 2 6 4

Students actually perform duties of upkeep of an inn under the careful tutelage of a maintenance supervisor. The problems presented and solved are under actual working conditions, so as to familiarize the students with on-the-job situations. Preventive maintenance is strongly emphasized.

3506 Hotel-Motel Accounting and Auditing 1 6 3

General Accounting including journal entries, financial reports, voucher registers are studied. Actual problems regarding internal control and auditing of subsidiary records are also covered in case studies.

Recommendation: 2201

3508 Hotel-Motel Front Desk and Bell Boy 1 6 3

A course in procedures for registering and handling guests. The student will study uniform systems of night auditing developed by national associations and major accounting firms for hospitality organizations.

3512 Hotel-Motel Layout and Decoration 3 0 3

An introductory course in actual layout of dining rooms, lobbies

sleeping rooms, kitchens, and conference rooms. An actual laboratory specially equipped is used for the study of general blueprint reading, room and seating arrangements. Scale models of kitchen equipment and other equipment pertinent to the operation of hotels are used in the laboratory to give the student an excellent working knowledge of the areas. The student also investigates the selection of colors, fabrics and furnishings for interior decoration.

3514 Club-Resort Problems 2 0 2

A survey of special management problems commonly found in country clubs and resorts. Special instructions are given regarding relationships with boards of directors, club committees and general membership.

3518 Menu Planning 2 0 2

The student plans and studies menu layout, design and adapting the menu to the cultural background of the location and clientele. Professional planning will be emphasized. Nutrition balancing, cyclic and static menu uses, "specials," and "loss leader" items will be covered, in addition to consumer menu pricing.

3524 Dining Room Procedures 1 3 2

This course provides the student with methods of the American and European plan. Table arrangement for all types of functions is studied in addition to waiter-waitress protocol. The more formalized French silver service, continental buffet and white glove occasions are also included.

3528 Hotel-Motel Advertising and Sales Promotion 2 0 2

Organization and function of the hotel-motel sales department, stressing importance of year-round booking of future business; media used most profitably by hotels and motels; methods used to obtain public recognition and good will of guests. Included is specialized promotional projects involving various communications media, convention and group sales, catering and banquet sales.

3536 Civic Promotion and Relationships 2 0 2

Various media of advertising are studied with their unique peculiar-

ities to the hotel-motel industry. This includes proper communication with community organizations and guest relations, favorable approaches toward creating friendly images for the establishment, planning for conventions, club meetings, political headquarters, teas and style shows.

3540 Hotel-Motel Internship 1 12 5

This internship program involves experiences in hotel-motel and restaurant management under the direction of a qualified manager and college supervisor. The activities involve normal duties performed in a restaurant such as menu planning and pricing, buying techniques, customer relations, employee relations, community relations, advertising techniques, and maintenance techniques.

3550 Nutrition I 2 0 2

A basic course in nutrition which covers the following topics: determination of individual requirements for energy protein, minerals, and vitamins; foods as a source of daily requirements; and the relationship of food and nutrition to optimal physical fitness.

3551 Nutrition II 2 3 3

A continuation of 3550.

3552 Volume Food Management 3 0 3

An introduction to the various types of large volume food service institutions, with emphasis on operational differences, varied menu construction, raw material estimates, large volume preparation techniques, and the use of institutional food service equipment. Requirements for the refrigerating of all perishable foods and the mechanics for requisitioning and controlling volume purchases are taught.

3560 Culinary Arts I - Sanitation and Food Storage 2 3 3

Sanitation and personal hygiene rules and practices are a part of the student's learning throughout training. Rules in strict accordance with Local and State Board of Health regulations are taught. Sanitation requirements for the refrigerating of all perishable foods and the mechanics for receiving and issuing requisitions and controls are taught. Inventory control methods are also taught.

3561	Advanced Culinary Arts I - Sanitation and Food Storage	1 12 5
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A continuation of course 3560 for students specializing in culinary arts as a cook, baker or chef.

Recommendation: 3560

3562	Culinary Arts II - Baking	2 3 3
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Learning experiences are in the basic fundamental preparation of rolls and bread. The student is taught to prepare such deserts as tortes, cakes, fruit, chiffon, cream, soft and speciality pies, cookies and puff pastry desserts. Included also is the actual baking and preparation of quick breads, such as biscuits, corn bread and muffins. Attention is paid to the care, sanitation and maintenance of equipment involved in the cooking of these foods.

3563	Advanced Culinary Arts II - Baking	1 12 5
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A continuation of 3562 for students specializing in culinary arts as a baker or chef.

Recommendation: 3562

3564	Culinary Arts III - Meat Analysis and Fabrication	2 3 3
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This course emphasizes various grades of meats, cuts, and their uses under certain circumstances. The differences between primal and fabricated cuts are taught. Actual fabricating of meat cuts are taught. Actual fabricating of meat cuts is performed by the student.

3565	Advanced Culinary Arts III - Meat Analysis and Fabrication	1 12 5
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A continuation of course 3564 for students specializing in culinary arts as a cook or chef.

Recommendation: 3564

3566 Culinary Arts IV - Entrees 2 3 3

An introductory course in the preparation of meat and meatless entrees. The cooking of poultry, beef, pork, lamb, veal, and sea foods are taught as sub-sections in this course. The student will learn the basic entrees for each meal as well as the method of cooking by frying, baking, broiling and steaming. Short order cookery in the preparation of breakfasts and other meals which require quick preparation and service is also included. The student will concentrate on learning to work on a grill with speed and efficiency.

3567 Advanced Culinary Arts IV - Entrees 1 12 5

A continuation of course 3567 for students specializing in culinary arts as a cook or chef.

Recommendation: 3566

3568 Culinary Arts V - Soups and Sauces 2 3 3

This course teaches the types of stocks, the making of stocks, and their use in the preparation of soups and sauces. The derivatives from the sauces are emphasized. The student learns the important factors of blending flavors together and the artful skill of tasting the end product.

3569 Advanced Culinary Arts V - Soups and Sauces 1 12 5

A continuation of course 3568 for students specializing in culinary arts as a cook or chef.

Recommendation: 3568

3570 Culinary Arts VI - Vegetable Preparation and Pantry Skills 1 3 3

In this course the student learns the techniques and methods of preparing, cooking and merchandising many varieties of vegetables. Both the vegetable and non-vegetable types of salads are taught in conjunction with vegetable preparation and merchandising. This course also covers appetizers, Hor's D'oeuvres and other cocktail tidbits. The student is also given instruction in the handling of equipment used in this area of food preparation.



3571	Advanced Culinary Arts VI - Vegetable Preparation and Pantry Skills	1	12	5
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A continuation of course 3570 for students specializing in culinary arts as a cook or chef.

3580	Buffet Preparation and Service	1	3	2
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The difference between regular and classical buffet foods are discussed and prepared. Careful selections in combining foods for nutritional value along with creative abilities in decorative pieces and ice carvings are presented. Creative table display setups are arranged. Floral arrangements and eye-appealing layouts are the core in the presentation of this course.

3584	Kitchen Management Internship	1	18	7
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The supervision of the kitchen department, inter-department relationships and over-all restaurant activities are presented with special emphasis on cost controls, procedures of buying, inventory controls and methods. A sound knowledge of proper planning a kitchen to save steps, implement efficiency and improve working conditions will be learned by actual experience under the direction of a qualified chef and college supervisor.

3586	Internship in Restaurant Management	1	18	7
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The internship program involves experiences in restaurant management under the direction of a qualified manager and college supervisor. The student will become involved in processes such as customer relations, employer relations, front office procedures, housing management, food management, advertising, sales promotion and maintenance techniques.

3590	Housekeeping	1	6	3
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This course acclimates the student to the problems of the maids and the proper care of rooms and linens. The relationship of this department to the total motel is stressed. A study of fibers, constructions, designs, color and finishes in contemporary fabrics. Intelligent planning and buying of linens and other pertinent goods that are necessary for durable and economic operation of a hotel are taught.

## HEALTH OCCUPATIONS

Cls. Lab.  
Hrs. Hrs. Crs.

4004 Medical Office Skills and Procedures 3 0 3

Introduction to medical records, medical dictation, filing and indexing.

4005 Nursing Procedures 1 0 1

The basic knowledge of nursing procedures pertinent to x-ray technology.

4007 Equipment Maintenance 1 0 1

An understanding of x-ray machinery and the fundamentals of preventive maintenance.

4010 Radiation Physics 3 1 3

An introduction to the science of Radiation Physics essential for an understanding in the production of x-rays.

4011 Tomography Anatomy 1 0 1

This course is an introduction to the special procedure and anatomy of body section radiography.

4012 Surgical Diseases 1 0 1

This is a study of diseases of the human body which require correlation with the services of Radiography.

4013 Film Quality 1 0 1

A lecture course presenting advanced information for the production of quality films.

4014 Isotopes 1 0 1

This course is an introduction to the use and diagnostic value of radioactive isotopes in radiography.

4015	Radiation Therapy	2	0	2
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An introduction to assisting the radiologists with the radiation therapy necessary for treatment of tumors and all diseases requiring radiation therapy.

4020	X-Ray Techniques	4	2	5
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The theory of x-ray technique, which enables the student to correlate this knowledge to practical application, and acquaints the student with the care and handling of film and processing equipment.

4030	X-Ray Clinical Practices I	0	8	4
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The actual application of classroom and laboratory learning in the affiliating hospital school including radiographic positioning.

4031	X-Ray Clinical Practices II	0	32	12
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A continuation of 4030.

4032	X-Ray Clinical Practices III	0	32	12
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A continuation of 4031.

4033	X-Ray Clinical Practices IV	0	32	12
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A continuation of 4032.

4034	X-Ray Clinical Practices V	0	32	12
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A continuation of 4033.

4035	X-Ray Clinical Practices VI	0	32	12
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A continuation of 4034.

4036	X-Ray Clinical Practices VII	0	32	12
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A continuation of 4035.

4037	X-Ray Clinical Practices VIII	0	32	12
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A continuation of 4036.

4040	Radiographic Exposure I	2	0	2
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Radiographic Exposure I provides the student with a complete and thorough working knowledge of the manipulation of exposure factors.

4041	Radiographic Exposure II	2	0	2
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Radiographic Exposure II provides the student with an understanding of basic principles needed to construct charts for all situations and all technique ranges.

4042	Radiographic Exposure III	2	0	2
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This section is devoted to the more refined radiographic exposures.

4043	Radiographic Exposure IV	2	0	2
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A continuation of 4042.

4050	Radiographic Positioning I	2	0	2
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This course provides the student with precise and detailed information of radiographic positioning of the structures and organs of the body.

4051	Radiographic Positioning II	2	0	2
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This section provides more precise and more detailed information of radiographic positioning.

4052 Radiographic Positioning III 2 0 2

This section is more detailed positioning with the troublesome special positions the student may encounter in the second year.

4053 Radiographic Positioning IV 2 0 2

This section of positioning introduces the student to precise positioning of therapy patient in order for them to assist the radiologists.

4054 Radiographic Positioning V 2 0 2

This section is a more refined positioning. The student will be assisting the radiologists in a more professional capacity.

4060 Film Critique I 0 3 1

Introduces the student to constructive criticisms by the radiologists and instructors of x-ray films providing the student with the knowledge of quality x-rays.

4061 Film Critique II 0 3 1

This section is a progressive study of films with constructive criticisms.

4062 Film Critique III 0 3 1

This section provides a more detailed discussion of the student's films with registered technologist. Constructive criticisms by the radiologists and teacher supervisor.

4063 Film Critique IV 0 3 1

This section is to evaluate the student's films with criticism.

4064 Film Critique V 0 3 1

This section is devoted to the further evaluation of the student's

film with criticism.

4065 Film Critique VI 0 3 1

Criticism of the student's films by radiologists and teaching supervisor.

4066 Film Critique VII 0 3 1

This area is a final analysis of the quality of the student's films with criticisms by the radiologists and teaching supervisor.

4070 Professional Adjustment I 1 0 1

An opportunity for discussion regarding adjustments to the hospital environment by the student.

4071 Professional Adjustments II 1 0 1

This section provides more teacher-student lecture discussion regarding student adjustments and troublesome criteria.

4072 Professional Adjustments III 1 0 1

This section will be the last opportunity for the adjustments and troublesome areas with the student-teacher relationship with lecture-discussion on a more formal basis.

4080 Special Procedures I 2 0 2

This course acquaints the student with specialized and highly technical procedures used in Radiography.

4081 Special Procedures II 2 0 2

This section provides the student with working knowledge of specialized and highly technical procedures and an introduction to the contrast media used by the physicians and radiologists.

4082	Special Procedures III	2	0	2
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This course provides the student with more refined procedures and an introduction to Intraoral radiography.

4090	General X-Ray Examination Review	2	0	2
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This section is a general review of all sections pertinent to the student's examination by the A.R.R.T.

4095	Departmental Administration I	1	0	1
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A lecture course consisting of acquaintance with organization, function, supervision, and financial arrangements relative to departments of Radiology.

4096	Departmental Administration II	1	0	1
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The student's function with the radiology and administrative departments.

4301	Introduction to the Study of Diseases	2	0	2
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A study of growth and development in health and illness correlated with anatomy and physiology.

4310	CLA Laboratory Techniques I	6	9	9
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A survey of the procedures and equipment commonly in use in the hospital or clinical laboratory.

4311	CLA Laboratory Techniques II	3	3	4
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A continuation of 4310.

4312	CLA Laboratory Techniques III	2	5	4
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Study of techniques utilized in donor screening, phlebotomies, blood

grouping and crossmatching. Laboratory practice in typing and cross-matching blood samples.

4313 CLA Laboratory Techniques IV 3 3 4

Study of blood constituents and the theory and techniques used in collecting and studying blood samples. Laboratory practice in systems for enumeration of formed elements of the blood, measurement of other blood elements, and determination of sedimentation rates, body fluid collection and preservation, physical characteristics of body fluids and routine qualitative and quantitative tests. Laboratory practice in identification of physical characteristics, measurements, and performance of specified tests are also included.

4314 CLA Laboratory Techniques V 3 3 2

Study of coagulation theory and methods for performing specific blood studies. Laboratory practice in procedures related to identification and differentiation of blood calls and to coagulation of blood.

4320 MLA Experiences I 0 30 12

Applied practice in making reagents, using trip and analytical balances; calibrating colorimeter tubes; using standard curves, recoveries and control solutions; calculating standard deviation and confidence limits; checking all calculations; and performing urinalyses. Applied practice in the hospital hematology laboratory. Experiences include patient contact, venipunctures, calibration of hemoglobin curve and hemoglobin and blood diluting pipettes, and duplication of findings of staff technologist on routine analyses of blood samples.

4321 MLA Experiences II 0 34 12

A continuation of 4320.

4322 MLA Experiences III 0 34 6

A continuation of 4321.



4340 Medical Bacteriology and Serology 5 15 10

Supervised practice in procedures of the bacteriology, serology, and parasitology departments, to include: preparing cultures, reading gram stains and colony characteristics, staining and screening AFB smears, and preparing laboratory equipment, glassware, and media; performing routine serological tests; identifying parasites or occult blood in body specimens.

4360 Clinical Chemistry 3 10 6

Study of the theory and techniques used in the clinical chemistry laboratory.

4350 Human Relations for Health Occupations 2 0 2

Appreciating medical services and their relationship to the patient's restoration to health and ultimate return to society. Appreciation of the patient as an individual.

4510 Nursing Skills I 6 9 9

Basic principles and practices essential to the development of skills, attitudes and abilities that serve as foundations for safe patient care.

4511 Nursing Skills II 4 1 4

Basic principles and practices essential to the administration of selected medications.

4520 Nutrition and Diet Therapy 4 0 4

Principles of nutrition for all age groups and general principles of therapeutic diets.

4530 Conditions of Illness I 4 0 4

A study of the general deviations from normal body function.

4531 Conditions of Illness II 5 0 5

A continuation of 4530.

4550 LPN Clinical Experiences I 0 24 9

Clinical assignments in selected hospitals including medical and surgical nursing, care of the mother and newborn, care of the child, and diet therapy.

4551 LPN Clinical Experiences II 0 32 9

A continuation of 4550.

4552 LPN Clinical Experiences III 0 32 12

A continuation of 4551.

4560 Maternal and Child Health 6 0 6

Nursing care of the mother and newborn with psychological and physiological aspects of normal pregnancy, delivery and the post partum period.

4704 Common Surgical Conditions 4 2 5

Deviations from conditions of health which necessitate surgical procedures.

4710 Operating Room Technique 6 9 9

Principles related to preoperative care and overall safety of patient. The development of skills as a member of the operating room team, the proper positioning. Applying the principles of bacteriology to the care of contaminated cases. Understanding the basic concepts of anesthesiology and the relationship to patient or operating room team and the Anesthesiology Department. Skill in handling drapes, folding and packaging of goods. Suturing--understanding and applying suture needles. Learning the various instruments. The importance of accurate records and the need for recording specific data.

4720 Surgical Procedures I 5 2 6

Study of anatomy with respect to specific operative procedures, special equipment and supplies.

4721 Surgical Procedures II 4 2 5

A continuation of 4720.

4730 Clinical Experiences I 0 30 12

Experiences in cooperating hospitals in scrubbing and circulating for major and minor surgery, observing and assisting in selected diagnostic procedures.

4731 Clinical Experiences II 0 30 12

A continuation of 4730.

4732 Clinical Experiences III 0 30 15

Clinical experience in cooperating hospital emergency care departments.

4760 Emergency Room Techniques 3 0 3

Study of first aid treatment and effective methods of assisting patients with various injuries.

4808 Medical Law and Economics I 3 0 3

An introduction to the manner in which the law effects the practice of medicine with familiarity in medical practice acts, legal relationships of physicians and patients, professional liabilities and the physicians' public duties and liabilities.

4809 Medical Law and Economics II 3 0 3

A general knowledge of the economics of medicine, the demands for

medical service and the various systems through which service is provided including types of medical practice, systems of medical care, bases for determining fees, health and accident insurance and governmental medical care programs.

4820 Medical Assistant Techniques I 3 2 4

A familiarization of the Medical Assistant with preparing the patient for examination in the office, assisting the doctor, and care and preparation of sterile equipment.

4821 Medical Assistant Techniques II 3 3 4

A continuation of 4820.

4822 Medical Assistant Techniques III 2 2 3

A continuation of 4821.

4840 Medical Laboratory Orientation 2 0 2

An introduction to various laboratory and x-ray procedures with emphasis on preparation of the patient for various procedures, their purposes, and the expected norms of results.

4850 Medical Assistant Clinical Experience 0 6 2

Applied learning experiences in selected physicians' offices, clinics, and hospitals.

5005 Dental Anatomy 2 0 2

A survey course dealing with dental anatomy and physiology, with emphasis on the application to the oral structures and environment.

5020 Assisting Techniques I 3 6 4

Identification and orientation to the various restrictive and clinical

areas of service including operative dentistry, prosthodontics, crown and bridge prosthodontics, pedodontics, periodontics, endodontics, oral surgery, and anesthesiology. The procedures for various operations involving instruments and materials. Practice in procedures, uses of materials and instruments as applied to dental assisting.

5021	Assisting Techniques II	3	3	4
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A continuation of 5020.

5022	Assisting Techniques III	3	3	4
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A continuation of 5021.

5050	Clinical Experience I	0	12	4
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Assignment of the student in affiliating clinics, dental offices, or clinics.

5051	Clinical Experience II	0	12	4
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A continuation of 5050.

6001 Personnel Management for Unit Supervisors 3 0 3

A management development course, the material covered is directed toward the responsibilities of any supervisor or potential supervisor regardless of the position presently held. To permit him to function effectively, typical areas to be covered by classroom discussions and lectures are responsibilities of the supervisor, functioning within an organizational structure, communications, job management, delegation of authority, interviewing, orientating and inducting new employees, training employees, work improvement and evaluation of employee performance.

6004 Manufacturing Organizations and Management 3 0 3

An in-depth study, the course is oriented for the first line supervisor who is interested in the inter-relationships of the various departmental functions and the overall management problems encountered in a manufacturing organization. The mid-management functions of marketing, engineering, production control, purchasing, production and industrial relations, quality control, cost control are studied and discussed. Topics include the establishment of lines of authority, duties and responsibility and rules for charting an organization structure.

6008 Instructing Employees on the Job 2 0 2

A streamlined, intensive course, the material covered is designed to give supervisors practice in developing skills to instruct and train employees properly. A four step method of instructing employees to do their job quickly correctively and conscientiously is presented. The course is not intended to provide any training in "knowledge of work," but to cover methods of job instruction and special problems with regard to working conditions, long operations, noise and problems of "feel."

6010 Safety Training and Fire Prevention 3 0 3

A consideration of managerial and supervisory responsibility for fire and accident prevention, covering topics such as the preparation of accident reports, machine guarding, the use of personnel protective equipment, conformity to state industrial accident code and fire regulations, provision for first aid, the use of safety committees, and the methods of advertising and promoting a good safety and fire prevention program.

6012 Labor - Management Law 3 0 3

The purpose of this course is to explore the development and application of the labor laws and practices that form the basis of modern-day industrial relations. Among the topics to be considered are the History and Development of Organized Labor, Federal Labor Legislation, Labor-Management Act, Wage-Hour, Civil Rights, State Laws and Regulations, Local Regulations, Federal Pre-emption Doctrine, National Labor Relations Board, Federal Mediation and Conciliation Service, the Organizing Drive, the Strike, Collective Bargaining, Anatomy of a Labor Agreement, Handling in-shop Grievances, and Arbitration.

6014 Purchasing Principles and Value Analysis 3 0 3

This course is designed to provide a practical approach to procurement with regard to price, quality, quantity and delivery. Personal ethics, legal aspects of contracts, records, performance, and foreign procurement standards are discussed in detail. The role of the purchasing section or department a member of management's value analysis team is studied in-depth.

6016 Techniques of Value Analysis 3 0 3

The course is designed to provide an organized effort to get more for your money. It applies recognized techniques and tests to measure value and thus eliminate unnecessary costs in design, development, and manufacturing without affecting quality. It differs from cost control because it is directed toward analyzing value--not cost. This course stimulates faster action in bringing about changes that would not come to pass in the normal scheme of things. It tends to compress the time for getting things done and putting ideas into effect. It is the cooperative effort of all individuals to attain one-goal--the maximum value per dollar.

6018 Production Control 3 0 3

This course is designed to bring the range of concept and technique to a point of useful application in the practical design of production planning, inventory control systems, and follow-up. The concepts and methods described will be drawn from the very adequate dual sources of test and experience.

6020 Quality Control and Zero Defects 3 0 3

This course places emphasis on the principles and techniques of quality control to fulfil the organizational objective of completing

the job right the first time. The purpose of the course is to provide the unit managers or supervisors with information that is necessary to help in initiation of a "Zero Defects" program that can be adapted to instill pride of workmanship in their employees. Other topics covered include vender-customer relationships, sampling inspections, process control and tests for significance.

6022 The Power of Small Group Discussion 2 0 2

This course was developed after much research and considerable cost by the DuPont Corporation. It has produced outstanding results wherever given and has been highly praised in the "Public Opinion Index for Industry." A Conference Leadership - "Plus" course, it presents different, but proven, techniques for making meetings, small or large, produce results.

6024 Industrial Psychology 3 0 3

A description and analysis of the roles of labor and management is presented. Much time is devoted to labor-management reactions, including the evolution and growth of the American Labor movement and the development and structure of American business management, communicative channels are also discussed and analyzed. The course also includes supervisory leadership in matters such as selection and training procedures, monotony and fatigue factors, turnover, accident prevention and human engineering.

6026 Human Relations in Industry 3 0 3

This course is not intended to make supervisors experts in psychology but rather to improve their job performance through a better understanding of psychological factors influencing workers. The course presents the motivational approach to gaining greater worker productivity by application of appropriate human relations techniques.

6028 Industrial Statistics 3 0 3

The course develops an understanding for preparing of business data, trends, and reports requiring a working knowledge of statistics. Topics covered are the different kinds of averages, deviations, percentiles, sampling, correlations, seasonal fluctuations, index numbers, graphic presentation, operations research, and PERT.



6030 Economics of Industry 3 0 3

A course in fundamental ECONOMICS is necessary to appreciate the basic principles of a business system. Everyday terminology is used and emphasis is placed on practical portions of economics as opposed to theoretical. Subjects covered are various types of business organization, costs and pricing, competition, money system, taxes, productivity, automation, etc. Text reading, group discussion, case studies, and lectures are used in conducting the class.

6032 Manufacturing Cycles 5 0 5

Purchasing and distribution costs; consumption patterns; channels of distribution; marketing of consumer goods; shopping, speciality, agricultural and industrial goods, service marketing; functional middlemen; speculation and hedging; wholesaling; shipping and warehousing; exporting and trade movements; standardization and grading; pricing, government regulation of competition; sales promotional activities; merchandising practices.

6034 Motion and Time Study 4 0 4

The goals of MOTION & TIME STUDY will be in the "Practical Application" area, using actual shop practice basis for the establishment of rates. The subjects will include elemental breakdown sheets, leveling factors, variables, M.T.M application, standard data, general purpose data, sampling study, direct and indirect standards, and graphical expression. MOTION & TIME STUDY will encompass most homework assignments to enable the student to have a good background for "methods improvement" application.

6035 Job Analysis and Evaluation 3 0 3

This study is based on product studies as well as personnel and wage program. The course utilizes the study of product design, value analysis, materials, and processes as an intricate part of productive procedures.

6036 Manufacturing Costs 3 0 3

A study of standard cost systems, the principle of cost accounting and cost reduction, the setting of cost standards for direct and indirect labor and material costs, and methods of estimating manufacturing costs.

6038 Work Simplification & Measurement 3 0 3

A study of the supervisor's responsibility for job methods improvement, with emphasis on the basic principles of work simplification, motion study fundamentals and time study techniques. Use of flow and process charts, multiple activity charts, operation charts, flow diagrams and methods evaluation are included among the subjects to be discussed.

6040 Plant Layout and Process Planning 3 0 3

A practical study of factory planning with emphasis on the most efficient arrangements of work areas to achieve lower manufacturing costs. Layouts for small and medium-sized plants, layout fundamentals, selection of production equipment and materials handling equipment. The principles, practices and methods of process planning are included as well as tooling determination, operational sequence, setup and operational time, routing forms and interpretation of charts, and process analysis of selected jobs.

6042 Traffic and Transportation Management 3 0 3

This course is presented for the development of personnel associated with or working in the transportation and traffic management field. The course is designed to cover intermediate management, technical development and other phases of transportation organizations. It will include discussions covering the American Transportation System and Federal Regulations, Freight Traffic Territory, Freight Classification, Principles of Freight Rates and Tariffs. Shipping Documents and their Application. Special Freight Services, and a Study of Freight Claims.

6044 Basic Numerical Control 3 0 3

This course is intended for production supervisors and foremen. The purpose of the course is to provide a useful background for understanding numerical control machines from an operating standpoint. This course does not apply to a particular machine but should provide the necessary information for a supervisor to quickly adapt to a particular machine. Material covered includes the definition of terms, machine and axis nomenclature, tape and code standards, basic manual positioning programming, binary numbers and digital systems, typical n/c control block diagram, n/c machines, general and review.

6046 Shop Mathematics and Slide Rule 3 0 3

This course is designed to provide a "refresher" review of basic arithmetical processes, shop applications of geometry and trigonometry, and the basic functions of the slide rule. Trainees will be given actual practice in the use of the "slip-stick" for practical problem solving.

6048 Managerial Report Writing 2 0 2

This course will emphasize the qualities of a good report -- organization, clarity, grammar, spelling, format style. This includes the elements of report preparation - audience, data research, rough outline, organizing data, preparing final outline, writing first draft, editing for accuracy, brevity and clarity, writing final draft, the importance and preparation of illustrations, etc.

6050 Report and Proposal Writing 3 0 3

The material content of this course emphasizes the proper presentation and preparation of government contract proposals. The actual steps necessary for successful presentation will be combined with report writing and the analytical material necessary for presenting this material for acceptance by government agencies.

6052 Office Management 3 0 3

Areas of office services from the managerial viewpoint. A brief overview of the problems of organizing, constructing, installing, and maintaining office systems. New concepts of office automation are introduced.

# AIRFRAME AND POWER PLANT TECHNICIANS

		Cls.	Lab.	
		Hrs.	Hrs.	Crs.
6101	Aircraft Fundamentals	3	0	3
Study of the history and development of rockets, turbojet and turbo-prop engines. Theory of propulsion. Current jet engines, their construction details and use in current aircraft. Applicable Civil Air Regulations.				
6104	Drawing, Blueprints, and Aircraft Hardware Designation	3	0	3
Studies of multiview projections and isometric projections. Use of drawing instruments, technical drawing, and use of blueprints to determine specific information about aircraft parts, steel and aluminum numbering systems.				
6108	Federal Aviation Regulations	3	0	3
Mechanic ethics and legal responsibilities, mechanic certifications, proper execution of required maintenance and airworthiness documents.				
6106	Aircraft Structures and Theory of Flight	3	0	3
Airplane structures, dynamic reaction of air, forces acting on an airplane and helicopter in flight, stability, control surfaces and their operation.				
6108	Flight Operation Factors	3	0	3
Weather and its effect on aircraft and engine performance temperature, humidity pressure, icing, fundamentals of aerodynamics, Civil Air Regulations pertaining to operation of Transport Category Aircraft. Weight and Balance computations, solving problems of center of gravity shift as affected by changes of cargo loading with fuel loading.				
6110	Practical Flight Engineering Procedures	3	6	4
Cockpit procedure, normal flight procedures, emergency procedure in flight, use of power curves and cruise control, use of pressurization, heating and ventilation. Trouble shooting of all aircraft and engine systems while in simulated flight, coordination of crew members use of check lists.				

6112 Structures and Performance

3 0 3

Handling of aircraft with emphasis placed on work operations and service inspections. Detailed study of engine and flight controls, air conditioning and heating systems, aircraft anti-icing systems, oxygen systems, fire protection equipment, interior maintenance and pyrotechnics. Study of terms and practical chart work concerning performance of transport type aircraft.

6114 Aircraft Mathematics

2 0 2

Mathematics for mechanics with emphasis on practical problems encountered in shop construction and overhaul work. Fractions, decimals, conversion, solving areas and loading. Horsepower, fuel and oil consumption, compression ratio and material strength problems.

6116 Elementary Weight and Balance

3 0 3

A study of weights arms and moments, weighing procedures, calculating the empty weight and empty weight center of gravity, calculation of the most forward and most rearward C. G. locations, finding fully loaded weights and placarding.

6118 Advanced Weight and Balance

3 0 3

Advanced calculations in weight and balance of aircraft including C. G. control and placarding.

6120 Powerplant Fundamentals

3 0 3

Theory of operation of internal combustion engines. Construction and advantages of different types of aircraft engines. Practical work in disassembly, inspection of parts, checking tolerances to specifications, reassembly, and valve and ignition timing. Lubrication and lubrication system. Cooling, ignition, and induction system principles.

6124 Aircraft Propellers and Propeller Control Systems

3 0 3

Theory and practical work on various types of propellers, both wood and metal. Fixed, adjustable, controllable and feathering types to include manual, hydraulic and electrical operation. Service and permissible repair procedures. De-icing and anti-icing systems are also included.

## 6125 Powerplants

3 0 3

Study of R-2800 and R3350 engines with emphasis placed on detailed study of the R-3350. Study of the external oil systems and use of engine power curves. Detail study of Hamilton Standard Hydromatic reversing propeller system.

## 6126 Powerplant Operation

3 0 3

Aircraft fuels: carburetion and induction system. Combatting induction and fuel system icing detailed study of pressure injection carburetors, direct fuel injection and water injection. Cruise control, computation of fuel consumption, time, speed and distance calculations. Maximum range operation, determination of reserve fuel.

## 6127 Fuel, Fuel Systems and Induction Systems

3 0 3

Study of fuels, fuel systems and induction systems including the construction, installation, operation, repair, maintenance, adjustment and inspection of the systems and their component parts. Emphasis is placed upon carburetion.

## 6128 Aircraft Powerplant Electrical Systems

3 6 4

Operation, maintenance and overhaul of DC motors, starters, generators, magnetos, sparkplugs ignition harness. Timing magnetos to the engine booster systems, jet ignition systems and overall troubleshooting. Aircraft batteries, operation and maintenance.

## 6129 Analysis and Correction of Powerplant Troubles

3 6 4

Safety precautions, preflight inspections, servicing and maintenance of powerplants. Engine instruments, controls, and their operation, starting and stopping procedures, propeller operation, propeller governor operation, their troubles and correction. Trouble analysis and correction of the ignition and electrical systems, magneto timing, generator and generator control systems.

## 6131 Aircraft Electrical Systems I

3 6 4

Study of electrical power sources. Detailed studies of these systems: Inverters, Starters, Booster Pumps, air conditioning, pressurization, warning circuits, light circuits. Engine electrical systems including generators, voltage regulation and control, ignition systems, starting aids, spark plugs, and use of ignition analyzer.

6132 Aircraft Electrical Systems II

3 6 4

Advanced study of alternating current, direct current and magnetism, wiring practices and distribution, measuring instruments and troubleshooting procedures. Aircraft power sources generator systems and controls, lighting systems, starter circuits, landing gear systems, flap systems, heater systems, electrical tachometer systems and radio installation procedures. Alternating current electrical systems, alternators, induction and synchronous motors.

6134 Instruments and Electronics

3 6 4

Magnasyn, Autosyn, pressure and synchronous instruments and their power sources. Electronic Systems, radio radar, auto pilot and compass systems.

6136 Airframe Inspections and Repair

3 6 4

Method and procedure of assembly and rigging of complete airplanes. Correction for faulty flight characteristics. Types of control systems, their installation, rigging operation, service repair, adjustment and inspection of a certificated aircraft. Use and preparation of all FAA forms.

6138 Aircraft Systems

3 6 4

Detailed study of the hydraulic and landing gear systems of a transport type aircraft. Brakes, flaps, nose wheel steering, flight boosters, and fuel dump valves. Fuel systems units and their operational function. Fuel system management.

6139 Aircraft Hydraulic System, Landing Gears and Auxiliary Equipment

3 6 4

Practical study of units used in brake and hydraulic systems, including inspection, repair, replacement and maintenance. Pressurization, oxygen, fire extinguishing, fuel, and other systems.

6150 Aircraft Mechanic Hand Tools and Their Use

2 12 6

Proper use and care of tools, equipment and instruments required for construction, maintenance, operation, overhaul, repair and inspection of an aircraft, engine, propeller, and their appliances.

6152 Engine Overhaul

2 15 7

Cleaning of engine parts using solvents and hull blasting. Inspection by Magnaflux, Zygló, and precision instruments of engines and each component part. Repair, reconditioning, and replacement of engine components. Engine refinishing. Actual engine overhaul is accomplished with much of the work being done on live engines.

6154 Engine Line Maintenance and Jet Engine Theory

2 15 7

Ground handling of the airplane, towing, parking, mooring, use of hand signals. Auxiliary power units, oil dilution, maintenance of the external lubrication system, powerplant removal, compression check, valve adjustment, cylinder change, replacement and servicing of engine accessories. Powerplant installation, inspection of the installed powerplant. Powerplant instruments, Jet powerplant operating principles, radial flow, axial flow and turbo prop, thrust, lubrication systems, jet accessories, ignition and thrust augmentors.

6160 Jet Engine Overhaul

2 15 7

Removal, disassembly, inspection, repair assembly and installation of the engine components which consist of: Exhaust Cone, Turbine Rotor, Combustion Chamber, Turbine Frame, Compressor and Accessory Gear Case. Shop work on the engine, using the necessary special tools and fixtures. Classroom study on the details of the overhaul procedure.

6162 Jet Engine Accessory Overhaul

2 15 7

Study of jet fuels and lubricants. Fuel system designs and operation of fuel systems. Disassembly, inspection, repair and assembly of fuel pump, barometric, overspeed governor, fuel control valve, fuel flow transmitter and other fuel system components; oil tank, lube pump, scavenge pump, lube filter, heat exchange and other oil system components; starter unit, generator unit, ignition components; indicating units and transmitting units. Shop work on the accessories using necessary special tools and testing equipment. Classroom study on theory of operation and overhaul procedures of jet engine accessories.

6164 Jet Engine Operation and Line Maintenance Procedures 2 15 7

Engine removal, inspection, repair, installation and inspection. Engine operation emergency procedures, ground testing and trouble shooting. Shop work on the engine and airframe combination including familiarization with instrumentation, operation, and trouble shooting



procedures. Classroom study on line maintenance procedures and operation procedures of the entire powerplant.

6170 Aircraft Fabric Application and Doping Techniques 2 15 7

Textile materials, preparation for covering and covering procedures, repair methods, rejuvenation, doping and finishing. Spray gun and brush application of lacquers, and enamels.

6172 Aircraft Woodworking 2 15 7

Study of Aircraft woods and wood defects, glues and gluing, use, care and maintenance of shop machine and hand tools, approved method for repairing wooden ribs, spars and plywood skins.

6174 Aircraft Metals and Sheet Metal Aircraft Repairs 2 15 7

Identification, properties, and uses of metals in aircraft construction. The techniques of riveting, forming, heat-treating and storing of metal materials. Practice in making FAA approved induction systems, etc. Troubles due to compression, wear and maladjustments.

# AIR-CONDITIONING AND REFRIGERATION TECHNICIANS

Cls. Lab.  
Hrs. Hrs. Crs.

6201	Introduction to Air-Conditioning & Refrigeration	1	0	1
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An introduction to the Air-Conditioning and Refrigeration Industry. Guest speakers from the industry will be invited to give lectures to the students.

6203	Principles of Air-Conditioning and Refrigeration Systems	2	6	4
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A study of the purpose, design, and operation of the mechanical refrigeration systems to develop an understanding of the theory of air-conditioning and refrigeration.

6205	Air Conditioning-Refrigeration Cycles and Components	2	3	3
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This course is designed to give the student an understanding of various metering devices, correct charging procedures, service functions, heat exchanges, the thermo-dynamics involved and a working knowledge of the components.

6207	Hermetic Refrigeration Systems	2	3	3
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This course combines the knowledge of electrical controls and the mechanical system, and trouble shoots problems on window air-conditioners, freezers, and water fountains.

6209	Design and Operation of Commercial Refrigeration Systems	3	6	5
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A study of the design and operation of various kinds of commercial refrigeration equipment including control circuits, commercial controls and system components.

6211	Absorption Systems	2	0	2
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A study of the various kinds of absorption systems and their operation, including technical information on trouble shooting, proper installation, and selection of gas fired air-conditioning equipment for maximum human comfort.

6213	Psychometrics of Air-Conditioning Systems	2	0	2
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The course content deals with the properties of air, including humidity control and the variation of controlled conditions with a change in load or ambient conditions.

6215	Commercial Load Calculations and Equipment Systems	2	3	3
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The study of the factors involved in cooling load calculations for commercial refrigeration, calculation of a variety of cooling loads and the proper selection and sizing of equipment.

6217	Advanced Commercial Refrigeration Systems	3	6	5
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This course includes trouble shooting and wiring of control circuits as well as testing and the various methods of defrosting commercial refrigeration systems.

6219	Heating and Ventilating	2	2	3
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A study of heating system requirements, wiring diagrams, ventilating, and design of typical central heating systems.

6221	Air-Distribution and Layout	4	3	5
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The student is taught design, layout, installation, and cost estimating on a typical air-conditioning system and includes completing a design problem.

6223	Air-Conditioning Systems	3	3	4
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This course includes the design, installation, operation and service of central air-conditioning systems.

6225	Design and Control of Air-Conditioning Systems	2	6	5
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Special emphasis is placed on control circuits, heat pumps, water chillers, absorption and automotive air-conditioning.

Cls. Lab.  
Hrs. Hrs. Crs.

6227    Advanced Air-Conditioning Systems Analysis                    3    6    5

An advanced study of design, trouble shooting and problems associated with large tonnage air-conditioning systems.

6229    Special Project of Field Work                                    5    0    5

This course is designed to encourage individual initiative and development through the selection and satisfactory completion of a project involving the application of knowledge and skills.

# GRAPHIC AND COMMERCIAL ART TECHNICIANS

Cls. Lab.  
Hrs. Hrs. Crs.

6310 Art Processes 2 6 4

Basic instruction is given in art processes. As the students develop their skill in the field, color corrections on separation negatives and halftones is introduced.

6311 Composition and Design 2 6 4

The elements and principles of design are studied, analyzed and applied. Practical assignments provide experience in the procedure of developing compositions from basic form and structure. A study is made of conventional and abstract design as they relate to contemporary commercial art practice.

6315 Basic Lettering 1 6 3

Instruction and practice are given covering the formation, character and composition of letters used in the commercial art field. Time is allotted for students to develop skill in lettering used in the basic Gothic, Roman and script alphabets. Modification of the basic forms are covered to develop a good lettering style using pencil, pen, and brush.

6316 Creative Lettering 1 6 3

Modifications of lettering forms are stressed along with their application to commercial advertising. Lettering plates are rendered taking into consideration reproduction problems.

6318 Introduction to Illustrations 2 6 4

An introductory course in technical illustration. The illustrator's tools, skills, responsibilities, standards of workmanship, and function are stressed. The study of, and practice in, lettering is included with development of an individual style stressed.

6321 Design, Materials and Reproductions 2 3 3

A study of layouts and make-up of industrial manuals, instruction sheets and other materials encountered by the technical illustrator. Course includes a study of reproduction processes, other than offset lithography.

6323 Illustration Practice 1 9 4

Selected projects are given which enforce and strengthen the fundamental skills already developed in illustration. The beginning illustrator is expected to complete assigned projects with a minimum of help from the instructor.

6327 Illustration Techniques 2 6 4

An intensive study of prospective principles and their application to commercial illustrations as used in newspaper and direct-mail media. Pencil, pen, and brush techniques are emphasized.

6329 Life Drawing 1 6 3

A course covering study and practice in construction, action, form, and scale techniques of life drawing. Practice is given in making large and small drawings applicable to commercial art.

6331 Figurative Drawing I 1 6 3

A basic course offered in life drawing consisting of instruction and practice covering construction, action, and form. Various techniques are used to make both large and small drawings.

6332 Figurative Drawing II 1 9 4

A continuation of Figurative Drawing I designed to equip the illustrator with the skills necessary to apply the figure to commercial art illustrations.

6334 Technical Illustrations I 2 6 4

Freehand Gothic lettering and mechanical lettering machines and templates are investigated in depth. Charting and graphics are introduced. A high degree of skill is developed in axonometrics and point projections.

6335 Technical Illustrations II 1 6 3

Enlargement and reduction is introduced. Mechanical devices used in the field are covered. Blueprint interpretation is studied in depth and drawings are produced using special treatments such as phantom, cutaway exploding, shading, keyline and paste-up.

6336 Technical Illustrations III 1 6 3

Assignments are made in the production of a technically illustrated manual. Group activity is stressed. The student also compiles a portfolio of technical illustrations which he has accomplished.

6338 Advertising Psychology 2 3 3

The study of motivating factors in commercial advertising as they affect the design of posters, magazine illustrations and covers, containers, etc. Students practice with mock-ups in various color schemes, textures, spatial effects and animated characterizations.

6339 Advertising Design 2 6 4

Work consists of thorough training in the application of design principles, color, lettering and illustration as they apply to advertising layout. Interpretation of copy, the formulation of ideas and expression through a professional layout technique are stressed.

6340 Advertising Layout 1 6 3

Advanced study is made of the principles of advertising design and typography. Diversified advertising media are executed on a professional level.

6341 Practical Advertising Typography 1 6 3

A comprehensive study of the theory and practices of modern typographical areas is covered to familiarize the prospective commercial artist with letter styles, calligraphic letter forms and general composing room techniques. Applications found in various publications are used to study the field.

6342 Container Design 1 6 3

Three-dimensional design is covered in lectures and practical experiences. Projects are constructed involving principles of three-dimensional design as they apply to packaging and advertising aids.

6343 Display Design 1 6 3

The techniques and methods of composition, related to commercial displays and exhibits, are studied in depth. Two and three-dimensional projects are developed and executed in miniature. Finished projects are developed in visual aids, television slides, charts, maps, exhibits and window displays.

6345 Airbrush Drawing 1 6 3

This course includes principles of airbrush applications to production problems. Photo retouching, portrait retouching and production illustration are covered.

6347 Commercial Reproductions 2 6 4

A lecture-laboratory course in the theory and practice of preparing art copy for reproduction. Students make drawings for line and half-tone reproduction, using Ben Day, tints, and substitutes. Keyline drawings for color separation and four-color processing are also made. Intensive study is made of the methods used in the preparation of art copy for offset and letterpress printing and the problems they present to the commercial artist.

6350 Photography Fundamentals 2 3 4

A basic preparatory course in photographic fundamentals. Content covers the theory and practical applications of basic camera types. Picture taking, exposure determination, processing, and introduction to the media of the field are introduced.

6352 Photographic Composition 1 3 2

Special techniques are covered in photographing groups and large physical facilities. Some special effects are emphasized by using telephoto, wide angle, and other special lenses.

6354 Photo Lighting 1 3 2

Basic techniques of indoor, outdoor, and portrait lighting are presented. Subjects are photographed utilizing skills developed in lighting techniques learned.



6355 Finishing and Copying 2 9 5

Skills are developed in the service phase of photography. Use of filters, copying line and halftones, making slides, and mounting are stressed.

6356 Color Photography 1 3 2

A special course in color photography. The photographer becomes skilled in selection of media, subject, and lighting effects which produce high quality color prints. Hand oil coloring is also covered.

6357 Advanced Photography 2 6 4

The student is expected to apply the practical knowledges and skills which he has learned to individually approved projects. He should be able to proceed on his own with minimum amount of help from the instructor. Projects will be accumulated in an individual portfolio for the student to present to prospective employers.

6358 Photography Workshop 1 9 4

Skills are developed in the use of commercial photographic equipment. Photoelectric exposure meters, view cameras, lense function, and shutter speeds are explored. Enlargements and reductions are made in the darkroom.

6359 Advanced Camera 2 6 4

In this course the student is given instruction and practice in advanced camera operation and techniques. Most work is done in four colors. Production runs of special materials are accomplished.

6371 Printing Materials 2 3 3

A study of lithographic printing materials and their application. Course covers such areas as properties of papers, coatings, inks, light sensitive materials, plastics, and other media used by modern day lithographers. Skills are taught in identifying and utilizing the various media.

6372 Press Operation 2 3 3

Basic operations of the offset press are covered. The student be-

comes adept in adjusting the feeder system, loading, inking the press, paper handling, and general operation. Operating characteristics, component names and function, care and safety measures, are also stressed.

6374 Color Theory 2 6 4

Topics covered include the nature of light, diffraction and absorption of light, sensation of color, pigment colors, the manufacture of pigments, mixing of pigments, and the Munsell system of color notation.

6376 Lithographic Chemistry 2 3 3

Designed to give an understanding of the principles of chemistry as they apply directly to lithographic platemaking. Both deep-etch and albumin processes are covered. The student will be able to identify and produce developers, fixatives, and other special photographic compounds and solutions for specific applications.

6378 Lithographic Processes 2 3 3

Students become acquainted with offset printing processes as they may be used in internal industrial printing departments and by production advertisers. Jobs are accomplished in preparing illustration copy, special effects, line and halftone, and keyline drawing for four color separations.

6380 Graphic Techniques 2 6 4

Fundamentals of lithographic stripping, mechanical drawing, typographical layout, opaquing, ruling and terminology understanding are emphasized. Offset applications are paramount in skill development. This course must be taken in concurrence with Copy Preparation and Proofreading.

6382 Copy Preparation and Proofreading 3 6 5

Skills learned are applied to copy to be run on the offset press. Proofreading techniques and proof marks are introduced. The student learns to set up and operate the proofpress. This course must be taken in concurrence with Graphic Techniques.

6384	Basic Platemaking	2	3	3
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A working knowledge is developed in the preparation of surface plates and graduating to the use of conventional deep-etch plates. Multi-metal plates are also studied and demonstrated.

6386	Commercial Reproduction	1	6	3
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Skill development and practice in preparing copy for offset, roto-gravure, silk screen, and letterpress printing, including the influence of photoengraving and printing methods upon art techniques are emphasized.

6388	Production Lithography I	1	6	3
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A fundamental course designed to provide basic knowledge and skills in preparing and reproducing lithographic copy. Layout and copy preparation, operation of the process camera, plate making and offset press operation are stressed.

6389	Production Lithography II	1	9	4
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This intermediate course in offset printing acquaints the prospective offset pressman with the techniques of reproducing special types of copy. Detailed study is made of camera operations, correcting, improving and touching up photographic negatives. Some practical applications of photographic chemistry are also covered.

6391	Advanced Lithography	1	9	4
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Practical use of skills learned is emphasized. Students are given production jobs to perform and are responsible for layout, proofing, plate making, running the job, and collating and binding the final product.

6394	Cutting and Bindery	1	6	3
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This course is basically concerned with the handling of the final product. Operations covered are inspection, collating, inserting, trimming, padding, stitching, folding, and punching. Instruction is also given in the operation of the equipment involved.

Cls. Lab.  
Hrs. Hrs. Crs.

6395    Advanced Presswork

1    9    4

Work is primarily concentrated in color reproduction. Students may wish to experiment with various press and color problems which are deemed valuable to the entire group.

# DRAFTING AND DESIGN TECHNICIANS

Cls. Lab.  
Hrs. Hrs. Crs.

6401 Blueprint Reading 1 3 2

Instruction and practice in the study of working drawings and application of understandings from the "print" to the "work." Students will concentrate on the kinds of working plans analogous to the occupational interest area. Typical units will include: relationship of views and details, interpretation of dimensions, transposing scale, tolerances, electrical symbols, schematic diagrams, welding symbols, sections, material symbols, material lists, architectural plates, room schedules, plot plans, etc.

6403 Drawing Fundamentals 5 9 8

A practical course in the fundamentals of drawing. Basic skills are developed in the use of fundamental drawing equipment. Lettering, third angle projection, sectioning, beginning dimensioning, scale drawing, intersections, etc. are covered.

6404 Electrical Diagramming 2 6 4

Drafting skills are developed to the point where the technician can diagram electrical systems and controls satisfactorily for understanding and interpretation, common templates and simplified methods are stressed where possible.

6405 Technical Drawing I 3 6 5

This course is designed to aid the student in developing an understanding of the basic principles of orthographic and axonometric projection. The ability to produce accurate and complete detail and assembly working drawings as well as an elementary understanding of design principles, underlining drafting, is essential and exercises are provided to develop skill and understanding in these areas.

6406 Technical Drawing II 4 9 7

This course provides additional understanding of drafting problems, skills and techniques that are essential to the work of the draftsman. Introduction is given to several specialized drafting areas that are equally valuable in preparation for design work. The units in the course dealing with parts such as gears, cams, jigs, and fixtures pave the way for greater depth of instruction in the second year design courses.

6420 Architectural Drawing I 4 9 7

This course is designed to study the development and techniques for the preparation of working drawings. Elements of construction and planning of buildings; methods of representing architectural drawing and plans, elevations and details of light construction are studied.

6421 Architectural Drawing II 3 9 6

This course involves drawing of plans and details for building construction. Reference materials will be used to provide the draftsman with skills and knowledge in locating data and in using handbooks.

6426 Architectural Design I 4 9 7

An advanced course in commercial structure drafting. Sets of detail prints and developed for small commercial structures including electrical and mechanical layouts. Codes and specifications are studied and incorporated on the drawings.

6427 Architectural Design II 3 9 6

A selected project is done in the design and complete detailing of a commercial structure. Details should be of certification quality. The instructor works closely with the student but the student is encouraged to proceed on his own until roadblocks are reached.

6429 Building Codes 3 0 3

A detailed study is made of the federal, state, and local codes and authorities as they relate to commercial building construction. Sources and specification catalogs and publications are covered.

6430 Building Materials 4 0 4

This course is designed to study architectural and structural construction methods and materials, their nature and use, and equipment as used in general. The method and type of manufacture will be considered along with cost and feasibility of use.

6432 Architectural Rendering 3 0 3

Presentation drawings are made using prospective renderings. Emphasis is placed on techniques using pen, pencil, brush and tempera color.

6434 Estimating 3 0 3

Reference materials are covered which will allow the person to make realistic estimates. Accepted procedures are followed in presenting cost information and in dealing with variables such as labor markets, suppliers, quantity buying etc.

6436 Structural Analysis 4 0 4

This course is a combination of statics, mechanics, and strength of materials. It combines mechanics using the vector method, stress, strain, and elasticity of materials.

6437 Contracts and Specifications 3 0 3

This course is a study of building codes and their effect in relation to specifications and drawings. Specifications will be studied along with their legal and practical application to working drawings.

6439 Architectural History 3 0 3

An analytic study of architectural development, past and present, in terms of the influence wielded by environment and culture.

6440 Introduction to Civil and Highway Construction 2 0 2

This course is designed to introduce students to the Civil and Highway Construction field. Subjects will include job opportunities, working conditions, avenues of promotion, relationships with engineers, craftsmen and professional organizations. Contractors and engineers will be invited to explain their work and to advise students.

6441 Highway Materials I 2 6 4

The characteristics and use of soils as a construction material are covered in detail. Laboratory study and tests given in relation with application of results to specification requirements. Field trips and

film strips used to show current methods.

6442 Highway Materials II

2 6 4

Continuation of Highway Materials I with emphasis on concrete. Study of courses of aggregates and Portland Cement, their properties and use in concrete. Design of concrete mixes, using Water-Cement ratio. Laboratory procedure to be correlated with class work. Test specimens and adherence to specifications for field control will be studied.

6443 Highway Materials III

2 6 4

Study of bituminous materials, sources, and characteristics. Types and grades of asphaltic material and their application to construction of highways, airports, streets, and driveways. Study and design of asphaltic concrete mixes and materials used with them. All classroom work correlated with laboratory procedures in accordance with standard specifications.

6444 Surveying and Measurements I

3 6 4

This is an elementary course for students who have had little or no experience in surveying. Use and care of instruments will be stressed. Both level and transit work will be studied in detail. Some time will be given to plane table. Field practice will be correlated with classroom assignment to allow time for solution of field problems. Note books will be kept with emphasis on neatness and clarity.

6445 Surveying and Measurements II

3 6 4

Continuation of Surveying and Measurements I with special emphasis on accuracy. Interior angle closed traverse by stadia, angle repetition and prolongation of straight line by transit work will be emphasized. Closed circuit staking, horizontal and vertical curves; roadway and pavement crowns reviewed. Contour topographic surveying included in this course.

6446 Highway Design I

3 6 4

Introductory course in Highway Design beginning with route selection for secondary roads, drainage areas, structure locations, fill and cut areas with consideration given to grades, both roadway and ditch for erosion control. Short section of roadway will be located to simulate all phases of highway location prior to construction, R.O.W. maps with



deed abstracts, and acreage shown to cover R.O.W. acquisition for proposed highway.

6447 Highway Design II

3 6 4

Continuation of Highway Design I with route selection for primary roads discussed. A study of embankments for highways, airports and dams will be stressed with special emphasis on slope ratios and gradients. Stress distributions in embankments and bearing capacity of fills will be studied. Erosion control practices and their application to embankments considered.

6448 Highway Design III

3 6 4

A continued study of Highway Design II with emphasis on base courses, concrete pavement, and asphaltic concrete pavement; triaxial strength requirements. Students will locate, design and prepare for bids on complete section of road.

6449 Construction Equipment

2 0 2

Basic course on construction equipment, giving description and use of various types of equipment as used in highway construction. Time, production charts, and ownership cost will be covered. Explosives and their use with relation to construction and equipment will also be studied.

6450 Construction Methods

3 0 3

Methods employed by construction industry on highways, dams and airports, with relation to engineer aides, responsibility for compliance with governing specifications. Tolerances permitted, records to be kept, all covered in this course.

6451 Curves and Earthwork

2 3 3

Detail study of horizontal curves, relating to problems encountered on highway construction. Review of geometric and trigonometric relations. Mathematical principles of vertical curves. Computation of vertical curves of various length. Computations of embankment and cut quantities, by use of planimeter. Balancing of earthwork quantities and use of mass diagram.

6453	Inspection Procedures	2	0	2
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6454	Concrete Construction	3	3	4
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6455	Construction Estimating	3	0	3
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6456	Photogrammetry	2	3	3
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6460	Machine Processes and Principles	3	6	5
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6462 Statics and Mechanics of Materials

4 0 4

This course is designed to develop a knowledge of the underlying principles of analytical mechanics. The student should understand the basic laws of statics and dynamics. The study of the geometry of motion (kinematics), and the study of the forces required to produce motion (kinetics) must be involved. Study is made of the internal stresses and deformation of elastic bodies resulting from the action of external forces. The application of this principle of strength of materials is considered fundamental in the design of structures and machines. Emphasis is given to the analysis of the simple and combined stresses and properties of materials to meet the functional requirements in design. In this course, strength of such elements as riveted joints, beams, columns, shafts, and keys are determined.

6464 Mechanisms

4 0 4

A study of the principles of motions; absolute and relative velocities and accelerations; motions determined by instant centers; centroids as they apply to mechanisms; the motion of machine elements and the methods of supporting and guiding them; cam layout and velocity diagrams; and practical problems involving gears, belts, linkage, ratchets, universal joints and other mechanisms.

6466 Strength of Materials

4 0 4

Covers a thorough analysis of the fundamental concepts of mechanics as applied to machine parts, structures, beams and columns, as well as developing an understanding of testing techniques and acquainting the student with the strength of various materials and the method of testing.

6468 True Position Dimensioning

2 3 3

This course is a combination lecture-laboratory course that deals with the practices of stating and interpreting true position dimensioning and tolerancing requirements including The Three-Plane Concept, Tolerances of Position, Modifiers Applied to Datum-Features, Tolerances of Form, and Special Tolerance Applications.

6470 Basic Electrical Systems

1 0 1

Electro-mechanical systems are discussed with fundamental skills being developed in their application to remote control, automatic machinery processes, and material handling systems. Schematic print reading is also emphasized.

6472	Metals Fabrication	1	0	1
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The fundamental processes of laying out, cutting and forming sheet metals are covered as the student develops a chassis mounting or shielded container to house electronic equipment. Several projects insure coverage of basic knowledge and skills.

6474	Weldments and Fabrication	1	3	2
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A detailed study of holding devices and welding positioners. Course includes board practice in detailing welding fixtures and other fabrication holding devices.

6476	Link and Belt Mechanics	1	0	1
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A fundamental course covering the motion of machine parts and the manner of supporting and guiding them without regard to their strength. Graphic studies are made of relative motions of machine parts which include linkages, belt drives, friction gears, and ratchet devices.

6477	Cam and Gear Design	1	6	3
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A study is made of the theory and development of cams and also the design, application, and standard dimensioning of spur, worm and bevel gear mechanisms. Cam design is treated from the operating principles standpoint as they apply to specific machine motions. Gearing problems require that the draftsman is familiar with terms and basic principles of gear design.

6478	Inspection Processes	1	0	1
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Terms such as tolerance, fits, allowances, interchangeability, etc. are considered in their relationship to inspection procedures. Production inspection is covered in depth with the introduction of gage inspection where applicable.

6479	Hydraulics and Pneumatics	2	0	2
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A study of sensing devices and components used in the measurement of temperature, pressure, flow, and related phenomena. The application of the principles of mechanisms and fluids to the design of recording and sensing devices. The hardware application of commercial instruments supports the related technical information. Emphasis is placed on instrument construction, nomenclature, tests, testing procedure, calibration, and safety in laboratory work.

6481 Manufacturing Processes I 3 0 3

An introduction to machine tools, their design, applications, tooling, set up and operation with specific emphasis on the latest developments in high speed and high production of metallic and non-metallic parts including numerically controlled automated machinery.

6482 Manufacturing Processes II 3 0 3

A study of manufacturing methods and foundry practice, including an introduction to die casting; aluminum extruding, forging, stamping, and forming; plastic extruding; compression and transfer molding; hot and cold metal working; transfer equipment; and basic principles of automation.

6484 Tool Design 2 6 4

A fundamental course in the design and construction of tools, including cutting tools for mass production on engine lathe, turret lathes, drill presses, screw machines, milling machines, and broaches. Also selected areas in jigs and fixtures using commercially manufactured tool elements and an introduction to simple die design.

6486 Jig and Fixture Design 5 9 8

Principles of jig and fixture design are covered. Board experience is given in detailing common designs. Drill jigs, milling, boring, broaching, and lathe fixtures are included.

6487 Die Design I 5 9 8

Fundamental concepts in punch and die design are given in lecture and discussion sessions and reinforced by actual board experience. Common punch press dies, plus hot and cold forming, and special extrusion dies are included for study.

6488 Die Design II 1 12 5

Board skills are developed in geometric progressions for dimensioning complex detail drawings of progressive dies.

6490 Machine Design Principles

2 0 2

Lectures, demonstrations, mock-ups, and films are used to acquaint the student with machine tool principles. Special emphasis is placed on the development of an understanding of automatic machines such as the automatic screw machine, tape controlled machines, automatic chuckers and semi-automatic turret lathes as their operation affects tolling, holding, and positioning devices.

6491 Machine Design I

1 9 4

This course provides exercises in advanced drafting room practices where the student applies his knowledge of mathematics, science, and drawing to practical problems in the design of component parts of a machine. He analyses the problems, gathers data, sketches his ideas on paper, does all necessary mathematical calculations, makes working drawings, and finally checks his work. Consideration is given throughout to factors which influence the design such as the methods of manufacture, properties of materials, and conditions of product and manufacturing economy. The machine elements designed will be analyzed in regard to the functional requirements, geometry of design, and cost of manufacture. Attention is given to calculating load factors, deformations, critical accuracies, and the operative dynamics of numerous machine elements.

6492 Machine Design II

1 9 4

This course will be involved with the initial planning of machines, and fundamental decision making concerning loading, type of kinematic elements to be used, and correct utilization of the properties of engineering materials. Economic considerations (of the design of new machinery) will be studied. Consideration should be given not only to the cost of design, manufacture, sale, and installation, but also to the cost of servicing. The course should also study the safety features of the machine. In general the course will incorporate a rational method of design attempts to take the results of relatively simple and fundamental tests such as tension, compresssion, torsion, and fatigue and apply them to all the complicated and involved situations encountered in present-day machinery.

6493 Product Drawing

5 9 8

An introductory course to Product Sketching and Layout with emphasis directly toward Product Design.

6494	Product Design I	1	12	5
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Product design principles are taken up in this course. Emphasis is placed on the control, measurement devices, dimensions, electrical, hydraulic, mechanical components, design aids, and functions related to mechanical products.

6495	Product Design II	1	12	5
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Continuation of Product Design I.

6497	Design Problems	2	0	2
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Provides an opportunity for each student to use previous knowledge of mathematics, science, mechanics, and manufacturing process and materials to develop a scientific approach to problem solution to develop advanced skill in layout, drafting, and the use of tabled information in problems of design and detailing of machine parts.

6498	Manufacturing Facilities	2	0	2
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The student will study the local manufacturing facilities within the community. He will learn the types of equipment, products, and positions which will be available to him after graduation. A written report will be made by the student as partial fulfillment of the course requirements.

## ELECTRONIC AND INSTRUMENT TECHNICIANS

Cls. Lab.  
Hrs. Hrs. Crs.

6501 A Introduction to Electricity and Electronics: 2 0 2

This course will introduce the student to modern concepts and will discuss the fundamental theories of electricity and electronics. It will show how these theories are applied in the fields of communications, transportation, construction, manufacturing and the development of electrical power.

6502 Electricity 4 6 4

Electricity provides the student with the most basic concepts required of the electrical worker. Particular emphasis is placed on the concept of series circuits, parallel circuits, series parallel combination circuits as well as Ohm's Law. The basic definitions of electromotive force, current and resistance, receive special attention.

6504 Electronic Assembly Techniques 4 0 4

This is a practical experience for the students in their first term enrolled in the technical program. The course stresses the importance of good soldered connections, stable mechanical construction, and neat appearance. Most of the time is spent working at a bench making electronic assemblies. Virtually every type of terminal and connection to the terminal is used. Microscopic inspection of the completed work is made and the work must meet predetermined standards before the student progresses to the next project.

6506 Electronics I -- D.C. Fundamentals, Theory, and Practice 4 6 4

Materials to be covered: Use of Measuring Devices of Electronic Circuits; Resistance; Ohm's Law for Direct Current Application; Direct Current Circuits; Magnetism & Electro-magnetism; Meters; Batteries and DC Generators; Kirchhoff's Law & Applications; Inductance; Capacitance.

6507 Electronics II -- Alternating Current Fundamentals, Theory and Practice 4 9 7

Materials to be covered: Basic Principles of Alternating Current; Mathematics for AC application, Vectors, Phase Relation; Inductive Reactance and Impedance; Capacitive Reactance and Impedance; Alternating Current Circuits; AC Circuit analysis; Motors and Generators - AC; AC Power Systems; Resonance in Series Circuits; Resonance in Parallel Circuits; Transformers - Theory and Application.



6508	Electronics III - Vacuum Tube and Semi-Conductor Fundamentals	4      6      4
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The construction of bread boards, training in Basic Lab Techniques and use of Test Equipment. Materials to be covered: Rectification and Detection; Diodes; Audio Amplification; Oscillation; Vacuum tube and semi-conductor Characteristics and Curves; Tuned Circuits.

6509	Electronics IV - Basic Fundamentals of Vacuum Tube and Semi-Conductor Circuit Design	4      6      4
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Materials to be covered: Power Supply Circuits; Basic Amplifiers; Basic Oscillator Circuits; Audio Systems; FM Transmitters and Receivers.

6510	Electronics V - Advanced Fundamentals of Vacuum Tube and Semi-Conductor Circuit Design	4      6      4
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Materials to be covered: Non-Sinusoidal Waveshapes; Multivibrators and Flip-Flop Circuits; Special Oscillator Circuits; Blocking, Shock-Excited, etc.; Wave Shaping Circuits; Clippers, Limiting Circuits, Clamp Circuits, Counters; Television Transmitters; Television Receivers.

6511	Electronics VI - Industrial and Microwave Electronic Technology	4      12      8
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This course will take the components and simple, new work which the student has been exposed to and show how they are combined to form systems used in industry. The function of timed, detection, counting motor control, etc. will be covered in class lab. Material to be covered: Time Delay Circuits; Voltage Regulation and Industrial Rectifiers; Industrial Control Devices -- Tubes and Semi-conductors; Motors and Generators; Electronic Motor Controls; Photo-electric Circuits and Controls; Resistance Welding Controls; High Frequency Applications -- Induction Heating, X-Ray, etc; Numerically Controlled Machines; Synchro Motors and Control Systems; Servo Control Devices and Systems; Micro-waves and Radar in Industrial Applications.

6523	Instrumentation	4      9      7
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For measuring temperature, level, flows, viscosity, humidity, ph, and displacement. Standardization and calibration of instruments are also covered.

6525 Electric and Magnetic Fields 4 0 4

The student should have excellent control of algebra and trigonometry before attempting this course. Inclusive in the course are the relations of forces between charges and static electric fields. Magnetic effects of current and characteristics of magnetic materials are also studied.

6527 Transistors 4 9 7

This is a course in solid state electronics where the student receives instruction in the specific characteristics of specific solid state components. Testing procedures are emphasized.

6529 D. C. Machines 4 0 4

The student's mathematical ability is expected to be the same as one taking Technical Math III. This course presents the theory of operation, and characteristics of shunt motors and generators, compound wound motors and generators, starting and control devices, and protective devices.

6531 Industrial Control Circuits 3 3 4

An analysis of the various control circuits employed in industry. Research projects to determine capabilities, advantages, and disadvantages of the different types of circuits will be carried out by the students.

6533 Integrated and Thin-Film Circuits 4 6 4

A study of the latest developments and techniques in the area of solid state electronics.

6540 Trouble Shooting Techniques I 2 3 3

Course concerned with the techniques of trouble shooting electronic circuits and simple systems. Emphasis will be placed on signal tracing and signal injection methods.

6541 Trouble Shooting Techniques II 3 3 4

A continuation of trouble shooting techniques. This course will emphasize signal injection and signal tracing in more complex electronic systems. Emphasis will be placed on locating malfunction, replacing black boxes, then repairing black box circuits.

6542 Electronic Shop Processes I 1 3 2

This course is designed to introduce the student to the use of common hand tools, test equipment and other general instruments used in the installation and construction of electronic equipment. Emphasis will be placed on reliable electrical connection techniques, wiring, lacing and chassis layout and construction.

6543 Electronic Shop Processes II 1 6 3

A course concerned with the actual layout, building, trouble shooting and testing of simple electronic devices, such as power supplies and one or two stage amplifiers. The object of this course is to increase the student's knowledge of the theory, construction and design of electronic equipment and to allow him to acquire sufficient mechanical skill to successfully install, repair and construct equipment.

6544 Electronic Shop Processes III 2 3 3

A continuation of shop processes. This course is designed to familiarize the student with metal forming and shaping machinery and tools. Practice in sheet metal work will be included. Shop safety will be stresses.

6550 Applied Theory and Principles of Electronic Communications 3 9 6

A course designed to enable the student to become aware of all phases of electronic communications including: Power Supplies and Filters; RF and AF stages; Direct and Alternating Current Theory; Magnetism; Related Mathematics, Code Receiving; Transmitter Operation; and FCC Rules and Regulations.

6552 Industrial Electronics 3 9 6

This course involves an extremely wide range of application including process control with computers, R - F heating, X-Ray Inspections, Resistance Welding, Ultrasonics, Instrumentation, Closed Circuit TV, etc. An

important phase of Industrial Electronics is understanding and observing all safety precautions applicable to this field.

Recommendation: Electronics 1-4 or industrial experience or a practicing electrician.

6554	Electronic Instrumentation	3	6	5
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A study of the application of the basic electronic principles in devices such as: Transducers, Recorders, Analytical Instruments, Data Storage and Retrieval Apparatus. Instrumentation encompasses the measurement of various energy levels and the control of energy exchanges which can take place. Instrumentation makes use of electrical, electronic, chemical, physical and mechanical devices and practices.

Recommendation: Electronics 1 - 5; Industrial Electronics or equivalent industrial experience.

6556	Aerospace Instrumentation	2	0	2
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A study of the specialized instruments used in space research and travel. Problems in telemetry and control methods will be compared with conventional industrial problems.

6558	Materials and Testing	3	3	4
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A study of metals and non-metals, their fabrication and application. Laboratory work includes the use of machines for material testing.

6560	Automatic Control Systems	3	3	4
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A basic consideration of automatic control theory, elementary control systems, and control problems. Emphasis is given to the concepts of feedback, and the process of the feedback loop.

6562	Calibration and Standardization	3	3	4
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A course designed to emphasize the need for accuracy and validity of measurement and control devices. Laboratory periods will include practical application in specific calibration, standardization, and alignment procedures.

6564	Analytical Instruments	2	3	3
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A study of the various analytical instruments and their uses in the various industrial systems. Emphasis will be placed on the process stream types of analyzers.

6568	Instruments and Measurements	3	3	4
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6570	Measuring Principles (Mechanical)	1	6	3
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6571	Measuring Principles (Electrical)	2	3	3
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6573	Instrumentation in Industry	3	0	3
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6575	Control Principles and Telemetry	3	3	4
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# DIESEL AND AUTOMOTIVE TECHNICIANS

Cls. Lab.  
Hrs. Hrs. Crs.

6601 Automotive and Diesel Safety Practices 2 3 3

A general course in the development of safety in work habits and attitude. Safe practice in lifting, blocking, shielding, storing, ventilating, and fire precaution, as it pertains to the craft area being emphasized.

6603 Automotive Drawing Interpretations 2 3 3

A course which is designed to develop a student's ability to interpret automotive drawings, to make simple, functional working sketches, and to understand the relation between drawings, basic trade theory, and shop operations. The instruction applies to engine assembly, cooling system, oil lubrication system, fuel system, frames and front end, clutch assembly, transmissions, rear-end assembly, brake assembly, and lubrication and electrical systems.

6605 Tune-up and Carburetion 1 9 6

The operational principles of the automotive engine and the components that support good performance are studied. The laboratory is used for diagnosis of operational problems, repair and checking the operation. Testing equipment and instrumentation are used in the diagnosis and evaluation. Carburetion principle and repair of various types of carburetors is covered as part of this course.

6607 Automobile Engines 1 12 5

This one quarter course is designed to familiarize students with tools, machines, and equipment needed for the rebuilding of the automotive internal combustion engine. Theory, construction, design, diagnosis, disassembly, repairing, testing, and reassembly are stressed throughout the course. Emphasis is placed on work skills and proficiency throughout the laboratory practices.

6609 Brakes and Steering 2 6 4

A study of the fundamentals of mechanical, hydraulic, and self-adjusting brakes. The fundamentals of manual and power steering. Much of the course is in the trouble shooting and service area using the manufacturer's manual as a guide.



of rotating elements, wheels, shielding devices and clutches are some of the areas emphasized both from the standpoint of operational principles and skill in repairing.

30 Auto Body Repair Estimating

2 6 4

This course is on a lecture, demonstration, and discussion basis and covers the problems with which the auto body estimator is confronted. Each student has an opportunity to do some estimating and check his work against repair costs.

6632 Auto Body I

1 9 4

An introduction to the area automotive body and framework. The related work is supported by development of skills in the basic welding of their metals, metal shaping, and reshaping, bumping, dinging, dollying, filing, grinding, shrinking and soldering. Safe use of tools and equipment are integrated into all phases of instruction.

6633 Auto Body II

1 9 4

A continuation of Auto Body I. Work is done on actual fenders, doors, trunk lids, and hoods. Each part is removed, repaired, masked, painted, and reassembled. Instruction is given in the principles of each operation and use of each tool or machine. Portable power tools and safety are emphasized. Alignment of doors and other openings are covered as a part of reassembly. Skill and speed in performing the tasks are carefully checked.

6634 Auto Body III

1 9 4

A continuation of Auto Body II. Preparation is made for repairing major wrecked automobiles. Procedures of repairing the frame and alignment of the wheels and axles are studied prior to performing the tasks on wrecked autos. Repair and replacement roofs, quarter panels, windshield pillar posts, hinge and center posts, doors and rocker panels, trunk lids, and tailgates, and restoring of total wrecks.

6635 Auto Body IV

1 9 4

Continuation of Auto Body III. In addition to the work on the foundation parts the emphasis is placed on the interior, glass, finishing, trim, sealing medium, cost factors, and management problems. Skills and speed approach the employment status.



6640 Related Auto Body I 2 6 4

Related information pertaining to welding of these metals, metals forming, automotive body and frame structure, repairing principles, and safety practices are studied.

6641 Related Auto Body II 2 6 4

The basic principles of metal finishing, soldering, metal forming, shrinking, painting, and alignment are covered.

6642 Related Auto Body III 2 6 4

Related information pertaining to alignment, frame straightening, and restoring a total wreck is studied.

6643 Related Auto Body IV 2 6 4

The basic principles pertaining to the interior materials such as seat rollers, glass, sealing mediums, upholstery and inner body structure of wrecked automobiles are studied. Application of these principles is covered in the laboratory period.

6650 Introduction to Diesel Service 3 3 4

An introduction to the operational principles and servicing of diesel engines. Limited laboratory experience provides the support of the theory covered.

6652 Diesel I 2 6 4

An introduction to the fundamental principles of diesel powered equipment. Emphasis is placed on the attainment of a good practical understanding of the mechanics involved. Shop technique and methods are developed through actual testing, diagnosis, disassembly and reassembly.

6653 Diesel II 1 9 4

Practical work offered in this course is arranged in order to familiarize the student with techniques and skills needed to service, test, and calibrate modern fuel systems.

6654 Diesel III

1 12 5

Through the practical work offered in this course, the student will develop the manipulative skill needed to do construction equipment welding. Students shall also acquire knowledge and skill needed to service heavy equipment, electrical devices, and hydraulic components.

6655 Diesel IV

1 12 5

A practical experience area designed to familiarize and develop competence in the servicing of power transmission units and heavy equipment brakes. Self reliance is developed in the areas of failure, cause and correction as it relates to tracks and undercarriages of construction equipment.

6660 Cost Estimating

2 3 3

The analysis of factors contributing to the repair, rebuilding, servicing or manufacture of the product or components of the product is made. The economics of labor, parts, rent, machine purchase, lights, and various other factors pertaining to operation costs is estimated. Flat rate and other procedures are used.

6662 Automotive and Diesel Service Management

3 3 4

An understanding of the role and function of an automotive service manager. The responsibility of each member of the staff and the procedures of completing the servicing of customer's automobiles and diesels. The laboratory facilities provide the opportunity to get limited practice.

6664 Parts Department Practices

2 6 4

An opportunity to study the procedures for supplying, ordering, cataloging, and issuing of automotive parts for repairs. Each student spends some of his time working in the parts supply area, making out the parts invoice for each repair job and assisting in entering the cost.

# CHEMICAL AND METALLURGICAL TECHNICIANS

Cls. Lab.  
Hrs. Hrs. Crs.

6701 Introduction to Metallurgy 2 6 3

A survey course introducing the student to the field of metallurgy. It includes the location of ore deposits, the conditions found in the earth, derivation of metals from their ores, refinement and purification, admixture and alloying, and the manufacture into various shapes and forms for industry. The classification of ferrous and non-ferrous metals, the testing of metals for mechanical properties, and common metal problems such as fatigue and corrosion.

6703 Materials Testing 2 6 3

A lecture and laboratory course dealing with the inspection and testing of materials (primarily metals). The principles and procedures of testing is supported through operation of various testing machines used in industry. Hardness tests, spark tests, magnetic surface tests, magnetic surface tests, stress-strain data confirmation are examples of testing.

6705 Chemical Processes in Metallurgy 4 0 4

The application of chemical principles to chemical manufacturing and processing. Study is focused on industrial processes, materials, equipment, and problems involved in production.

6707 Instrumental Analysis 2 3 3

The use of various electrical and optical instruments for performing analyses with emphasis upon application of instrumental methods, and with consideration given to the limitations and common errors involved in using these instruments.

6709 Principles of Metallography 3 6 5

The lecture section acquaints the student with the use of alloy diagrams and its application to metallography. The laboratory section develops proper techniques in preparing metallographic specimens, operation of the equipment and the ability to identify basic microstructures of common ferrous alloys.

6711 Heat Treatment of Metals 2 6 4

The fundamentals of heat treating and the reactions which occur in metals, subjected to various heat-treating cycles is covered in theory. Equipment operation (gas and electric furnaces, controls and atmospheres) and practical application starting with the heat treatment of simple tools and progressing through special steels and non-ferrous materials is covered in the laboratory.

6713 Advanced Metallography 2 6 4

A lecture and laboratory course with emphasis on the development of laboratory techniques are perfected. Various structures of ferrous and non-ferrous materials are studied to develop an understanding of what these structures represent, the effects on physical properties of the materials, and application to industrial uses.

6715 Advanced Heat Treatment 2 6 4

Continuation of 6711 with emphasis on understanding heat treat procedures, techniques, analysis procedures, selection of heat treating processes, and application from metallurgical analysis.

717 Industrial X-Ray 2 6 4

A theory course pertaining to the fundamentals of industrial X-Ray examination of materials. Materials covered are machine operations, film development, and interpretation of the film characteristics. Emphasis is placed on the interpretation of structures and application to industrial uses.

6719 Technical Methods of Analysis 3 6 5

Commercial and industrial materials and product testing and analysis, utilizing previously learned principles of qualitative and quantitative analysis, but employing different standard techniques to determine characteristics of materials and products.

6750 Introduction to the Chemical Industry 1 0 1

A series of lectures, panel discussions and forums introducing the student to the chemical industry and the part he can play as a technician. Representatives from industry will be featured and tours will be made to local plants and laboratories.

6752 Chemical Calculations 3 0 3

Parallels and supports General Chemistry, presenting methods of solution of problems encountered in class exercises and laboratory experiments. Provides enriched experience in calculations and deeper understanding of physical and chemical phenomena. Electrical and electronic calculators are used.

6754 Chemical Analysis I 3 6 5

The fundamental gravimetric and volumetric methods, stoichiometry, complex formation, precipitates, neutralization.

6755 Chemical Analysis II 3 9 6

Oxidation-reduction reactions, analysis of multicomponent materials. Introduction to instrumental methods with enriched laboratory experience including such techniques as light absorption, colorimetry, etc.

6756 Chemical Analysis III 3 9 6

Provides enriched knowledge and experience with the type of analytical instruments likely to be encountered in a modern chemical laboratory.

6757 Chemical Analysis IV 3 6 5

Identification of organic substances by determination of physical and chemical properties, together with preparation of derivatives. Includes field trips to commercial laboratories for demonstration of instrumental identification.

6759 Use of Measurements 3 0 3

Basic concepts of industrial statistics as applied to measurements; significance tests, confidence limits. Use of analysis of variance to develop measures of precision according to ASTM standards.

6761 Mathematics for Process Improvements 3 0 3

Application of industrial statistics in the design of experimental programs in the laboratory and pilot plant and the interpretation of results in terms of ways to improve yields, productivity, quality of products, costs, or profitability.

Cls. Lab.  
Hrs. Hrs. Crs.

6763 Unit Operations I

4 3 5

Fundamental theories of chemical engineering and introduction to chemical process equipment. Scale-up of experiments from laboratory to pilot plant.

6764 Unit Operations II

4 3 5

Includes operation of pilot plant, with samples being analyzed in chemical analysis laboratories with results compiled into meaningful reports in Unit Operations Class.

6766 Introductory Physical Chemistry

4 3 5

Fundamental physical properties of matter as related to instrumental analysis.

# TOOL MACHINE AND MAINTENANCE TECHNICIANS

Cls. Lab.  
Hrs. Hrs. Crs.

6801 Introduction to Machine Shop 2 3 3

Selected operations are used to develop some skill and understanding in the use of basic machine tools as they apply to the related trade.

6803 Power Sawing 2 6 4

Understanding basic sawing principles, maintenance and development of skills in sawing; power sawing (band and reciprocating), blade selection and maintenance, holding and feeding devices.

6805 Layout and Inspection 2 6 4

To develop a fundamental understanding of basic inspection procedures. Selection of inspection instruments, accuracy and skill of measuring, sequence of operations, materials selection. An understanding and calculation of measuring procedures.

6807 Tool and Part Inspection 2 6 4

Understanding of the alignment and fixtures for machining multiple parts. To develop an understanding and use of part inspection gauging.

6810 Drill Presses 1 3 2

Understanding the principles and maintenance of drill presses and developing operational skills.

6811 Shaper I 1 6 3

Develop an understanding of shaper operations, cutting tools, work holding methods and applications. The following areas will be stressed: safety, tool geometry and materials, speeds and feeds, work holding.

6812 Shaper II 1 6 3

Advanced operations on the shaper with emphasis on accuracy and machine capability. Emphasis will be on angular cuts, horizontal and

curved cuts (contours), dovetails, finish, materials, job estimation, and materials.

6815 Milling Machine I 1 6 3

Introduction to milling with emphasis on types of machines, basic operations, terminology, and safe practices. Operations will include plain milling, sawing, straddle milling, form milling, work holding, speeds, and feeds.

6816 Milling Machine II 1 6 3

Advanced work on milling machines to include vertical and horizontal machines, speeds and feeds for materials, finish considerations, keyways and splines; standard attachments, work holding methods.

6817 Milling Machine III 1 6 3

Additional work on milling with advanced setups and tooling. The student will acquire skills in setting up and an understanding of boring, T-slots, angular and form milling. Holding irregular parts and time for operations of a similar nature will be stressed.

6818 Milling Machine IV 1 9 4

Completion of milling machine operations with emphasis on industrial requirements and standards. Operations will include jigs and fixtures, indexing for gearing (spur, helical, level, worm). Special attachments and adaptations for difficult operations will be studied.

6820 Engine Lathe I 1 9 4

Understanding of operational principles, nomenclature of parts maintenance and development of skills in turning, facing, center drilling, form turning, shoulders, tool geometry, tool grinding, tool positioning, tool selection.

6821 Engine Lathe II 1 9 4

Understanding limits, fits, tolerances and advancing skills in tapering, angle turning, UNC threading, knurling, drilling, and reaming.



6822 Engine Lathe III 1 9 4

Understanding the principles of threading (Acme-Square-Internal-External) boring, holding devices, and developing skills in the foregoing processes.

6823 Engine Lathe (Production) 2 6 4

Continuation of engine lathe work with emphasis on advanced operations and production tooling: fixtures, tooling, planning multiple operations, time requirements, and costs.

6824 Turret Lathe 1 9 4

An understanding of the principles, care, setup, and operation of a turret lathe. Turning, facing, center drilling, forming, drilling, reaming, cutoff for single-point and special tooling.

6830 Advanced Grinding 1 6 3  
(Surface, Tool, and Cutter)

Development of skill in the grinding procedures and measuring procedure of parallel surfaces, right angle surfaces, and the sharpening of helical cutters, end mills, side cutters, and face cutters.

6831 Grinding (Cyl) 1 9 4

Principles and skills of face, shoulder, cylindrical, taper, and internal grinding.

6840 Machine Processes 2 9 5

An advanced course designed to introduce students to new machine developments, techniques, and processes. Consideration of material and accuracy requirements as they relate to new products and machines will enable the student to select the proper machining sequence for economy and precision.

6850	Introduction to Machine Repair	3	6	5
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6852	Machine Repair I	1	9	4
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6853	Machine Repair II	1	9	4
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6860	Diagnosing and Repair I	1	9	4
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6861 Diagnosing and Repair II 1 9 4

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6865 Industrial Hydraulics 1 9 4

The fundamentals of fluid power and the components are covered as to principle, function, terminology, repair and use. Study of machine tool circuits is used to make application.

6870 Pattern Development and Layout I 2 9 5

The basic principles of simple and parallel line developments are demonstrated. Each student practices these principles on both paper and sheet metal. A series of projects are developed so that the layout gets progressively more difficult.

6871 Pattern Development and Layout II 2 9 5

The principles of radial line development and triangulation is demonstrated. A series of problems supplement the project series for the student's practice. The work is structure to get progressively more difficult with option projects for faster students.

6872 General Sheet Metal I 2 9 5

The first semester includes shop practices, selection of material, proper use of measuring devices, application of layout techniques. The use of hand tools and machines in cutting and forming are employed along with soldering in assembling of sheet metal fabrications.

6873 General Sheet Metal II 2 9 5

In addition to continuing the first quarter's work, emphasis is placed on skill and proficiency. The course also includes spot and oxy-acetylene welding, and heating and ventilating theory as applied to residential installations.

6880 Basic Electroplating & Metal Finishing 2 0 2

This course will consist of lecture, and discussions on the various kinds of metal cleaning, preparation, plating, and finishing.

Cls. Lab.  
Hrs. Hrs. Crs.

6901 Welding for Related Trades 2 9 5

An introduction to the area of arc and oxy-acetylene welding. The fundamental principles of joining ferrous metals are studied and demonstrated. Basic welding processes, equipment operation, and safety procedures are practiced in the laboratory work. Emphasis is given to welding procedures and practice in the major area of work such as machine shop, automotive, and sheet metal.

6905 Standards and Specifications 2 3 3

A course covering the welding certifications and classification established by the American Welding Society. Performance in welding by students is expected to meet A.W.S. standards, and learn the testing methods as well as obtain a knowledge of weld inspection methods.

6910 Welding I 1 9 4

To provide the opportunity for each student, in a general and comprehensive way, to learn the electric arc welding processes, and to give each student a basic understanding of the principles involving safety, machines, electrodes, and metals.

6911 Welding II 1 9 4

To expose the student to a knowledge of how to weld metals and alloys, understand the mechanical properties of steel and alloys; also to understand expansion, contraction, and shrinkage of metals, and study the sizes of welds and their strength.

6912 Welding III 1 9 4

To provide the student with a comprehensive view of all welding processes, historical background, fundamentals of the process, equipment, applications and economics of each process.

6920 Arc Welding I 1 9 4

To provide an opportunity for each student to learn the basic and comprehensive manipulative skills on all types of joints and welds, in

the flat and horizontal positions, using all classes of shielded arc electrodes, and flame cutting mild steel.

6921 Arc Welding II 1 9 4

To develop in each student the basic and comprehensive manipulative skills on all types of joints and welds, in the vertical and overhead positions, and prepare test plates on structural steel.

6922 Arc Welding III 1 9 4

To develop in the student the manipulative skills for pipe welding, M.I.G., and T.I.G welding on steel, stainless steel, aluminum in the flat, horizontal and vertical positions on all types of joints.

6931 Oxy-Acetylene Welding I 1 9 4

To provide the opportunity for each student, in a general way, to learn the gas welding processes. To develop in each student the basic manipulative skills on mild steel, in the flat, horizontal and vertical positions on all types of joints.

6932 Oxy-Acetylene Welding II 1 9 4

To develop the student's manipulative skills in torch welding and brazing of steel, cast iron, and aluminum; also pipe welding.

6940 Specialized Shielded Welding Processes 1 9 4

Pass operator welding tests on various welding processes and metals, specialize in his chosen field as a welder; also work with the semi-automatic process of submerged arc welding and gas metal arc welding.

6942 Welding Trouble Shooting 1 9 4

Construction, operation, maintenance, and trouble shooting of welding equipment. Evaluation of welding procedures and analysing of the problems. Recommendations and testing for improved welds.

6944 Seminar

2 6 4

The assignment of a specific topic or area is selected by each student. He pursues the development of depth of knowledge and skill in his selected area. He is assisted in his pursuits by the instructor. Emphasis is placed on the development of major skills involving problem solving or judgments which need to be made.

6950 Principles of Automatic, Spot and Resistance Welding 2 3 3

An introductory course to a specialized welding process of fusing parent metals together without the use of welding rods. The student will learn the equipment fundamentals and the methods of certificating such equipment to meet the American Welding Society's standards and specifications.

Cls. Lab.  
Hrs. Hrs. Crs.

7001 Custodial Materials and Equipment 1 6 3

A study of modern cleansers, detergents, disinfectants, insecticides, soaps, waxes, removers, paints, wood finishes, etc., in various forms such as liquids, powders, etc., as related to use of building surfaces and fixtures. Planning processes, calculating quantities and handling and storage techniques. The course includes instruction which will acquaint the student with special custodial equipment, attachments, and replacement units.

7003 Cleaning Materials Comparison Testing 1 6 3

Student will conduct comparison tests of various hospital custodial materials, analyse results, and prepare recommendations for cleaning processes.

7005 Floor Care and Treatment 1 6 3

Practical experience, under supervision, in the care and maintenance of various types of floor surfaces, including: terrazo, bare concrete, painted concrete, wood, rubber tile, carpeting, asphalt tile, vinyl tile, inlaid linoleum, ceramic tile, etc. Typical jobs will be cleaning, wax removal, waxing, sealing, and polishing. Skill will be developed in manipulation of portable powered floor care equipment.

7007 Wall and Ceiling Care and Refinishing 1 6 3

Supervised experience on jobs such as wall washing, repairing, plastering, painting, attaching wall coverings, such as canvas, applying paneling and installation of celotex ceilings. Skill will be developed in preparation of materials, layout, erection of scaffolding, and painting techniques.

7009 Institutional Sanitation 1 6 3

A study of the state and national sanitation codes for health care facilities and the materials used in maintaining standards.

7011 Furniture Repair and Refinishing 1 9 4

Supervised shop experience in repair and refinishing furniture and

building fixtures. Regluing and making and fitting new parts, stripping old finishes, sanding, refinishing, installation of laminated plastics, etc.

7013 Hospital Housekeeping Practice 2 6 4

Assignment to housekeeping responsibility in the nursing arts laboratory, first aid room and child care laboratory under the supervision of the instructor in charge. Student will develop skills in planning work and using custodial materials and equipment.

7015 Hospital Equipment Maintenance and Repair 2 6 4

A study of the nomenclature and practice in maintenance and repair of standard hospital equipment.

7017 Remodeling and Alterations 1 6 4

Supervised experience in remodeling and alteration work including wall removal and relocation, door hanging, installation of cabinets and fixtures, including formica work and painting and finishing.

7019 Electrical and Mechanical Systems Maintenance 2 6 4

Instruction and supervised practice in periodic maintenance of building, plumbing, mechanical, and electrical, including: water, steam, compressed air, and sewerage systems, heating plant, air conditioning units, single and three phase electrical panels and distribution systems, T.V. cable, and inter-communication systems. Tasks will include routine gauge readings, valve adjustments, motor lubrications, filter replacements, belt replacements, fuse replacements, burner adjustments, fuel testing, drain cleaning, locating and correcting stoppages, lamp replacement, sediment clean-out, etc.

7030 Lawn and Plant Care 1 6 3

Supervised field practice in caring for lawns and plants, including raking, fertilizing, application of chemicals, mowing, cultivating, etc.



7032 Tree Surgery and Trimming 1 6 3

Supervised field practice in repairing damaged trees, proper pruning techniques, tree removal, handling and replanting.

7034 Soil Preparation, Seeding, and Planting 1 6 3

Supervised field practice in the preparation of seed beds, seeding, grasses, planting flowers, shrubs, etc.

7036 Trees, Plants, and Grasses 1 6 3

A study of trees, both deciduous and evergreen, flowers, shrubs and grasses, utilized in the landscaping industry. Knowledge of the nomenclature, ability to identify, and regional adaptability will be stressed.

7040 Concrete, Asphalt, and Masonry Construction 1 6 3

Supervised field practice in building walks, planters, retaining walls, driveways, steps, tree wells, fences, etc. with the commonly used exterior materials. Students develop ability to work from plans in using both hand tools and powered equipment. Accurate layout including transit work is stressed.

7050 Work Planning and Scheduling 2 3 3

A study of systemitizing custodial tasks for optimum performance efficiency. Topics include estimating, ordering, altering traffic patterns, localizing equipment location, timing, reminder systems, utilizing drying time, etc. Each student will plan procedures and job assignments for custodial care of a commercial building.

# BUILDING CONSTRUCTION TECHNICIAN

Cls. Lab.  
Hrs. Hrs. Crs.

8001 Construction Tool Maintenance and Safety 2 0 2

The principles of the processes of maintaining hand and portable woodworking tools is covered by lecture and demonstration. The student develops skill in recognizing the need of repairs, practice in the repair and recognition of assistance in repair maintenance.

8002 Construction Blueprint Reading I 2 0 2

An introduction to the interpretation of blueprints, cabinet drawings, and sketches. Materials, floor plans, symbols, conventions, elevations, notes, and details are studied with the emphasis placed on the interpretation and visualization.

8003 Construction Blueprint Reading II 2 0 2

A continuation of Blueprint Reading I with emphasis on a depth of study in cabinet and carpentry work from prepared material and commercial blueprints and specifications. An introduction to interpretation of related trades using the same blueprint is covered. Special work such as shop drawing, forming and millwork is introduced.

8005 Construction I - Wood 2 9 5

Lectures and practical work combine to develop an understanding of the general practices in the field of carpentry, millwork, painting, and decorating. Instruction in each field deals with the following:

1. Carpentry. Concrete forms, joist, stud, and rafter framing; stair building, interior and exterior finishing; insulation; roofing; wall coverings and their finishes.
2. Millwork. Operation of millroom machinery; construction of door and window frames, stairs, sashes, and doors.
3. Painting and decorating. Composition, quality, and selection of the various materials; factors affecting their application; finishing and decorating walls, woodwork, and metal.

8006 Construction II - Concrete 2 9 5

This includes building layout procedures, construction of foundations and of interior and exterior walls, floor systems, application and mixing of cementitious materials including the laying of cement block, bricks and stone.

8007 Construction III - Electrical 2 9 5

The student is given sufficient knowledge to understand the wiring principles for power distribution and lighting principles as applied to architectural design. State, city, and local utility codes are studied and followed.

8008 Construction IV - Plumbing, Heating and Ventilation 2 9 5

The operation of mechanical equipment in the air conditioning field as well as the design and installation of systems using this equipment is covered. The design and installation of complete air conditioning systems, including heating, cooling, humidification, and air cleaning are studied. Heat losses and heat gains are calculated in order to familiarize the student with accepted practices used in selecting the proper size of air conditioning equipment. Various types of automatic fuel burning devices as well as comparable fuel heating costs are also studied.

8020 Applied Woodworking I 1 9 4 ics,  
ic

A beginning course intended for anyone who wishes to acquire experience in the use of hand tools and woodworking machines. Students start with fundamental tool processes on simple woodworking projects and proceed to advanced work as they acquire the necessary skills. Fundamental operations on a limited number of machines along with safety rules are taught.

8021 Applied Woodworking II 1 12 5

Training is provided in furniture and casework. The student is required to make by approved machine methods the common joints used in good construction. Such joints as the cross lap rabbett, dowel, and mortise are cut by machine methods. Representative pieces of furniture, selected according to the student's ability, are built to provide practical application of the operations. The student is encouraged to acquire high standards of workmanship as well as reasonable speed in making drawers, hanging doors, cutting inlays, and setting door catches, knobs, hinges, gliders and casters.

8022 Applied Woodworking III 1 12 5

Covers specific information on materials and supplies used by the cabinet maker and millworker. The method of manufacture, source of raw materials, standard sizes of the product, units of purchase, and grading

systems are studied and discussed. Specific assignments are made on each type of material, and reference texts are supplied wherever possible.

8023 Applied Woodworking IV 1 12 5

Covers the application and practice of the principles of cabinetmaking taught in the first three quarters. Machine maintenance and repair are stressed. Wood turning, router, and shaper operations are included.

8030 Woodworking Production 2 0 2

Methods of mass production of cabinet parts are covered. The student is given instruction in the method of quantity layout. Procedures in machine setup for quantity production are covered, cutting tools quantity production are discussed. Specific problems in production costs are given. This includes cost of quantity materials purchased.

80C

8034 Machine Maintenance 3 0 3

An advanced course for trade preparatory and adult students. The work consists chiefly of sharpening, adjusting and maintaining such woodworking machinery as disc sanders, belt sanders, planers, shaper, tenoning machine, and bend and circular saws and jointers.

## HYDRAULICS AND PNEUMATICS

Cls. Lab.  
Hrs. Hrs. Crs.

9001	Basic Hydraulics	2	9	5
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The student gains a fundamental knowledge of the principles of operation and constructional features of hydraulic pumps, valves, actuators, and accessories, and the development and application of basic hydraulic circuits. Laboratory assignments are performed to parallel the lectures.

9003	Fluid Power Fundamentals	2	12	6
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Instruction is designed to give the student a sound knowledge and understanding of basic fluid power principles. He becomes familiar with the development and growth of hydraulics, the advantages and problems of hydraulic set-ups, and the basic physical properties of fluids. He studies the principles of operation and the constructional features of hydraulic components; the development of basic hydraulic circuits; and the types and uses of seals, packing, and rigid and flexible fluid power plumbing. The construction and principles of operation of basic pneumatic components and circuits are included in this course. Laboratory experiments are performed to measure fluid flow characteristics, to test basic valves and pumps, and to build up and operate both hydraulic and pneumatic basic circuits.

9005	Fluid Power Circuitry I	2	12	6
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Lectures cover the development of various types of standardized hydraulic circuits used in industry. The discussions include circuits which are manually, mechanically, and pilot-operated. Special emphasis is placed on the selection of valves with respect to their operational characteristics. The transmission of fluid and the sealing of fluids in the system are dealt with in detail. The laboratory work consists of the building-up and operation of these circuits with special emphasis on the observation of the operating characteristics of the valving.

9006	Fluid Power Circuitry II	2	12	6
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The lecture part of this course includes calculations to determine cylinder sizes, pump capacities, valve sizes, transmission sizes, and velocities through various parts of the circuits. The student evaluates certain assigned problems, designs the circuit, calculates the required system pressures and component sizes, lists the components required, and determines the cost. The circuitry problems include those which are remote-controlled and solenoid-operated. In the laboratory, the student builds up and operates the circuits.

9010 Applied Fluid Mechanics

2 12 6

This course stresses the application of working formulas related to the physical properties of fluids, the flow of fluids in conductors, the measurement of fluid flow, the multiplication of fluid forces, head calculations on pumps, friction modulus of fluid conductors, the calculation of pipe sizes, head loss through pipe fittings, suction lift calculations, surge and shock calculations, temperature rise determinations, and other considerations dealing with the physical laws of compressible and incompressible fluids. Emphasis is directed to those laws which govern the behavior of fluids when used for power transmission. For example, special consideration is given to Pascal's Law, Bernoulli's Principle, Darcy's Formula, and Reynolds' Numbers. Laboratory experiments include the determinations of the physical properties of mineral, synthetic, and fire-resistant fluids; the measurement of fluid flow by means of several primary and secondary devices, the relationship between static and velocity pressures; the flow characteristics with respect to pressure loss and temperature rise through fluid power components; and the calibration of pressure, compound, and vacuum gages.

9020 Pneumatics

2 12 6

Instruction is designed to give the student a sound understanding of the constructional features and principles of operation of pneumatic power units, pneumatic controls, and pneumatic cylinders. In addition, he becomes familiar with the layout and operation of pneumatic circuits including power-operated holding devices, safety circuits, and remote-controlled circuits. Circuits studied are those which are manually, mechanically, pilot-, and solenoid-operated. Laboratory work includes the building-up and operation of circuits discussed in the lecture.

9030 Fluid Power Systems Analysis

2 12 6

A course designed to analyze and evaluate the requirements of circuits to perform specified functions as new fluid power applications arise. The analysis may involve the adaptation of such circuits as: unloading, pressure regulating, speed control, regenerative, sequencing, synchronizing, safety, servo-controlled, hydrostatic transmission, and others. Laboratory tests are made to determine the performance characteristics of pumps, motors, transmissions, valves, and actuators in terms of horsepower, torque, efficiencies, and frictional losses. The data obtained are used to set up performance curves as they apply to specific components. By means of an oscilloscope, the magnitude of surges or shock in a system is detected and calibrated. Comparisons of surge magnitude are made by redesigning systems.

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**NOW...**  
**It's up to You!**

**Good jobs are waiting**  
**You can have one**

**Training**  
**makes the**  
**difference**



